US011780653B2

(12) **United States Patent**
Rognard et al.

(10) **Patent No.: US 11,780,653 B2**
(45) **Date of Patent: Oct. 10, 2023**

(54) **TAMPER EVIDENT CONTAINER CLOSURE**

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(73) Assignee: **Obrist Closures Switzerland GmbH**, Reinach (CH)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 75 days.

(21) Appl. No.: **17/255,504**

(22) PCT Filed: **Jul. 3, 2019**

(86) PCT No.: **PCT/EP2019/067923**
§ 371 (c)(1),
(2) Date: **Dec. 23, 2020**

(87) PCT Pub. No.: **WO2020/007956**
PCT Pub. Date: **Jan. 9, 2020**

(65) **Prior Publication Data**

US 2021/0269198 A1 Sep. 2, 2021

(30) **Foreign Application Priority Data**

Jul. 3, 2018 (GB) 1810931
Dec. 21, 2018 (GB) 1821038

(51) **Int. Cl.**
B65D 41/48 (2006.01)
B65D 51/24 (2006.01)

(52) **U.S. Cl.**
CPC ***B65D 41/485*** (2013.01); ***B65D 51/242*** (2013.01); *B65D 2401/30* (2020.05); *B65D 2401/45* (2020.05)

(58) **Field of Classification Search**
CPC B65D 41/485; B65D 51/242; B65D 2401/30; B65D 2401/45; B65D 2401/15;
(Continued)

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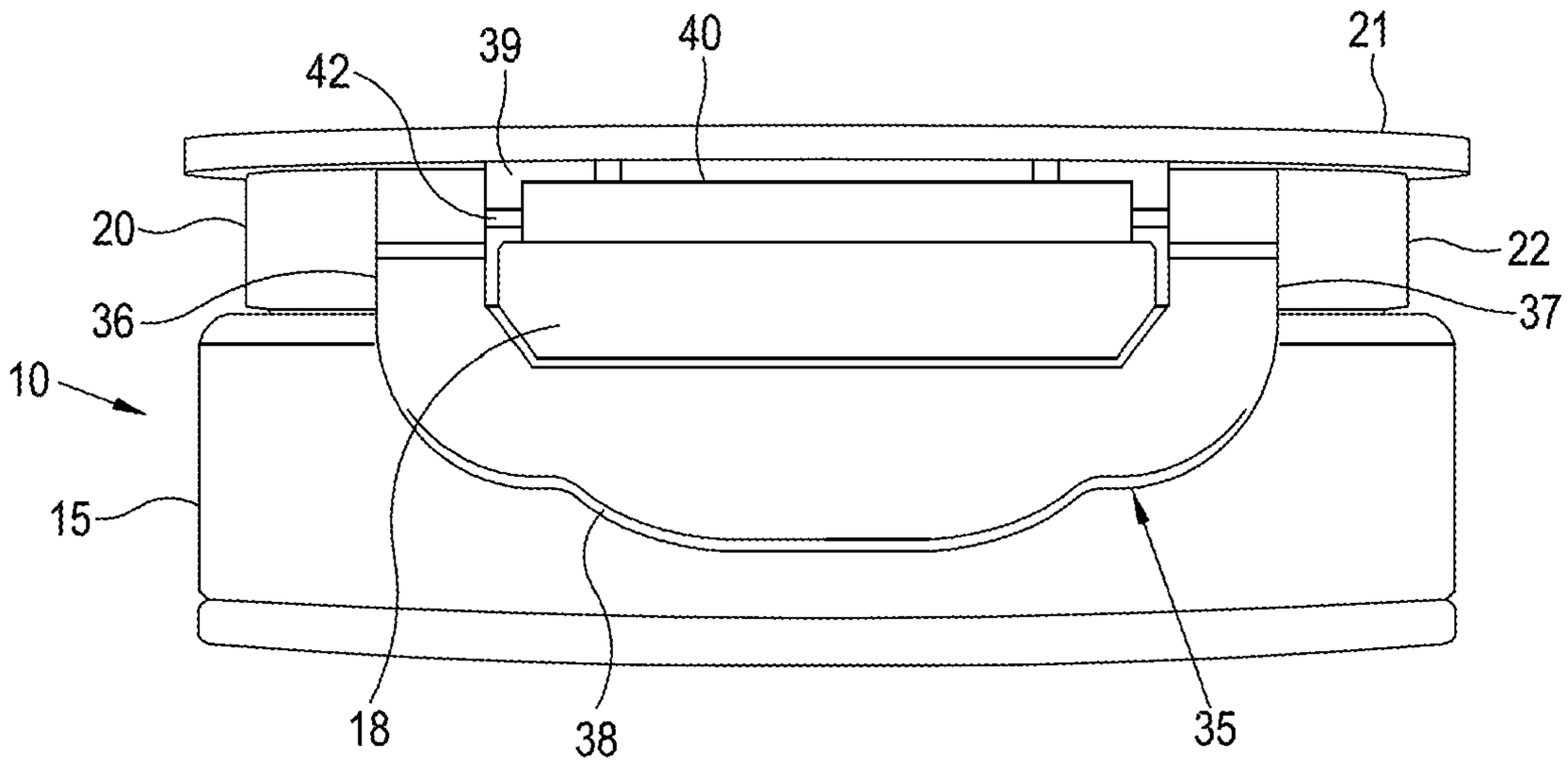
Primary Examiner — Shawn M Braden
(74) *Attorney, Agent, or Firm* — Banner & Witcoff, Ltd.

(57) **ABSTRACT**

A tamper-evident container closure (**10**) is provided and comprises a base (**15**) and a lid (**20**). The base and lid are connected together by a hinge (**25**) so that the lid can be moved between a closed position and an open position. The base is attachable to a container neck. Generally opposite the hinge the lid includes a retention member (**35**), the retention member includes or defines a window (**39**) and includes a retention portion for engagement with a cooperating portion on the closure and/or on a container neck for holding the lid in a closed position. The closure includes a tamper-evident member (**40**) at least part of which moves into or out of view with respect to the window to indicate opening of the closure.

20 Claims, 33 Drawing Sheets



(58) **Field of Classification Search**
CPC ... B65D 2401/20; B65D 47/08; B65D 55/024
See application file for complete search history.

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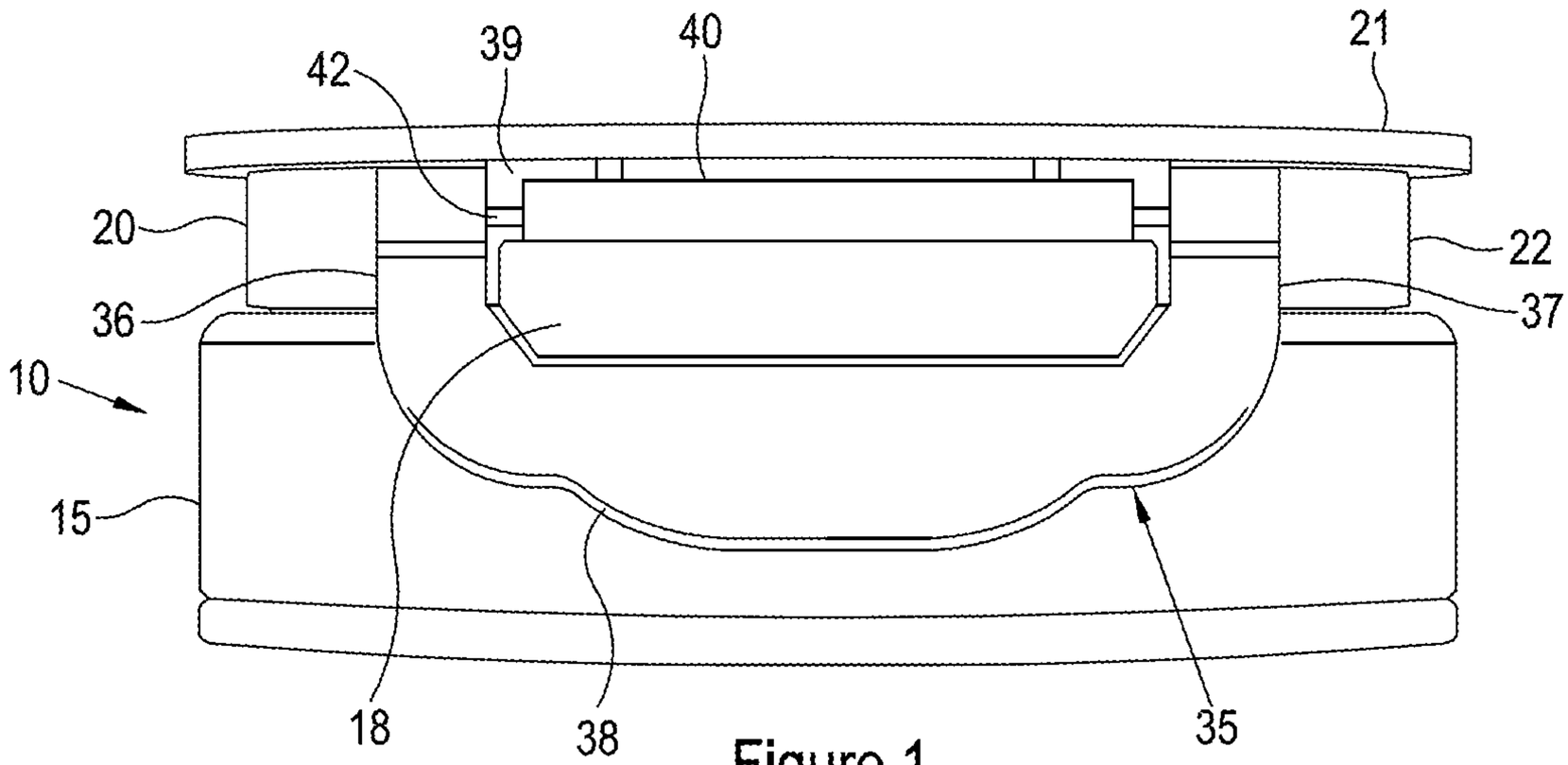

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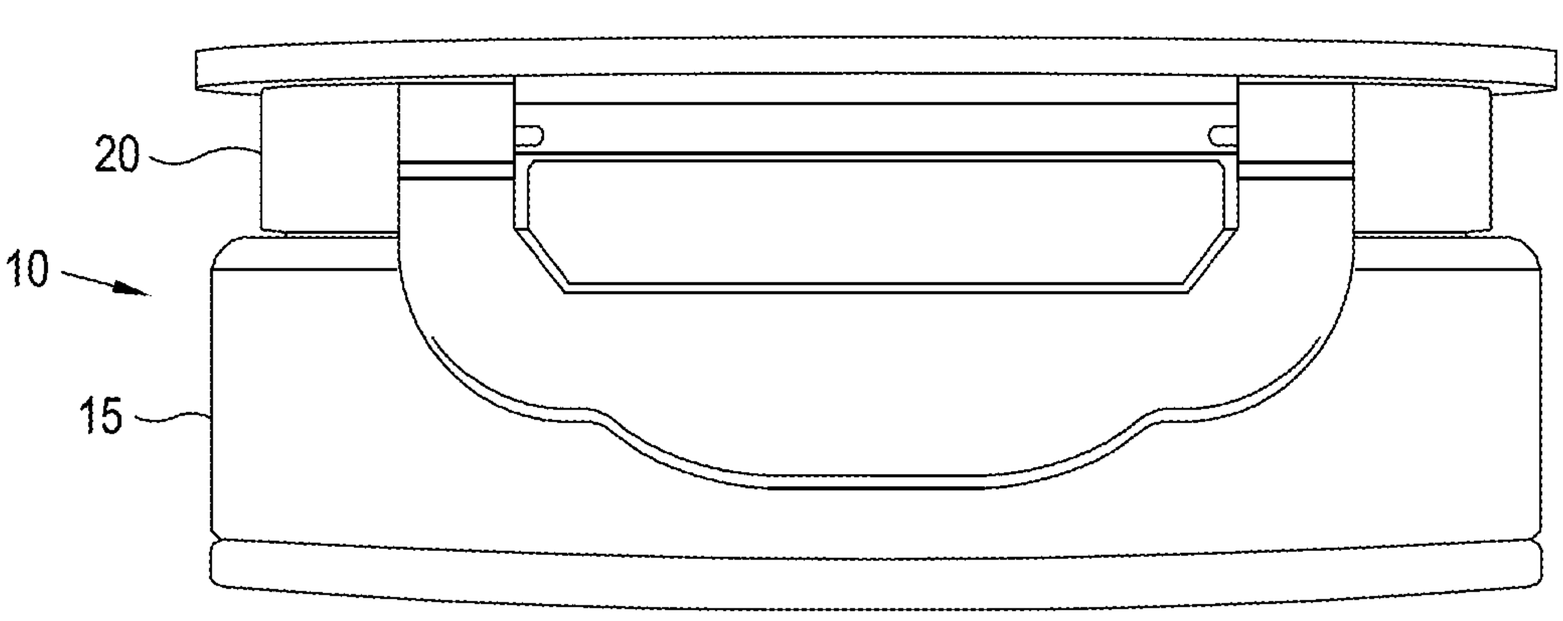

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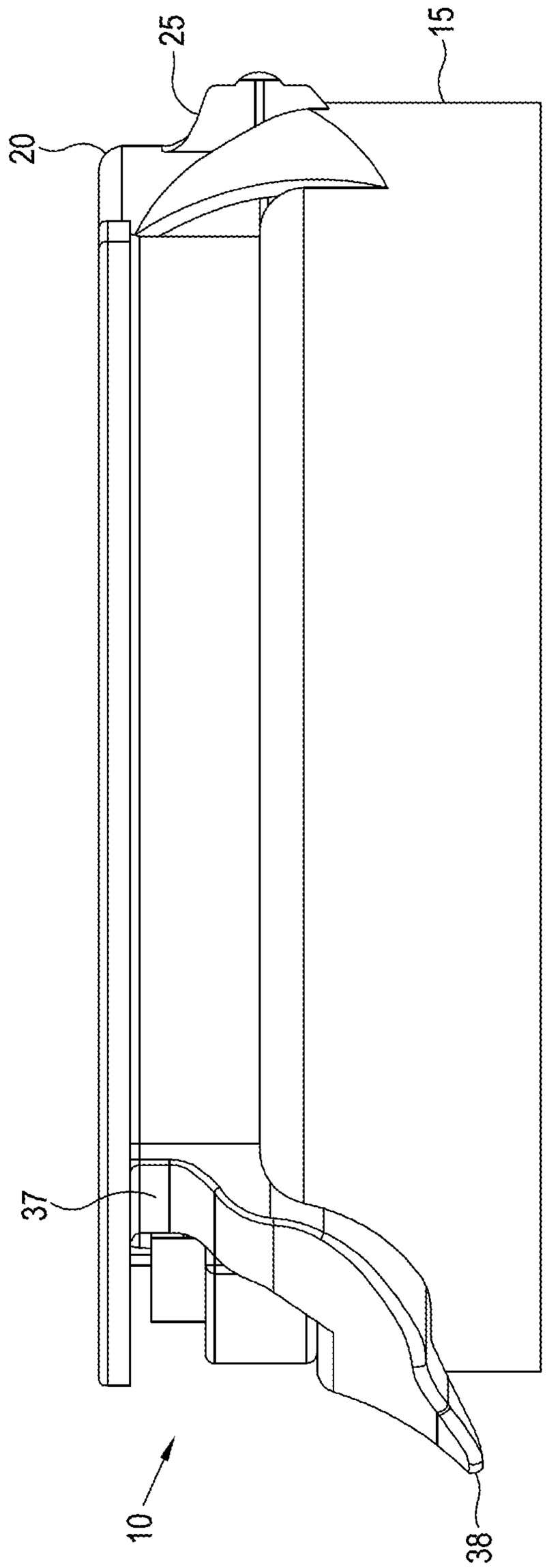

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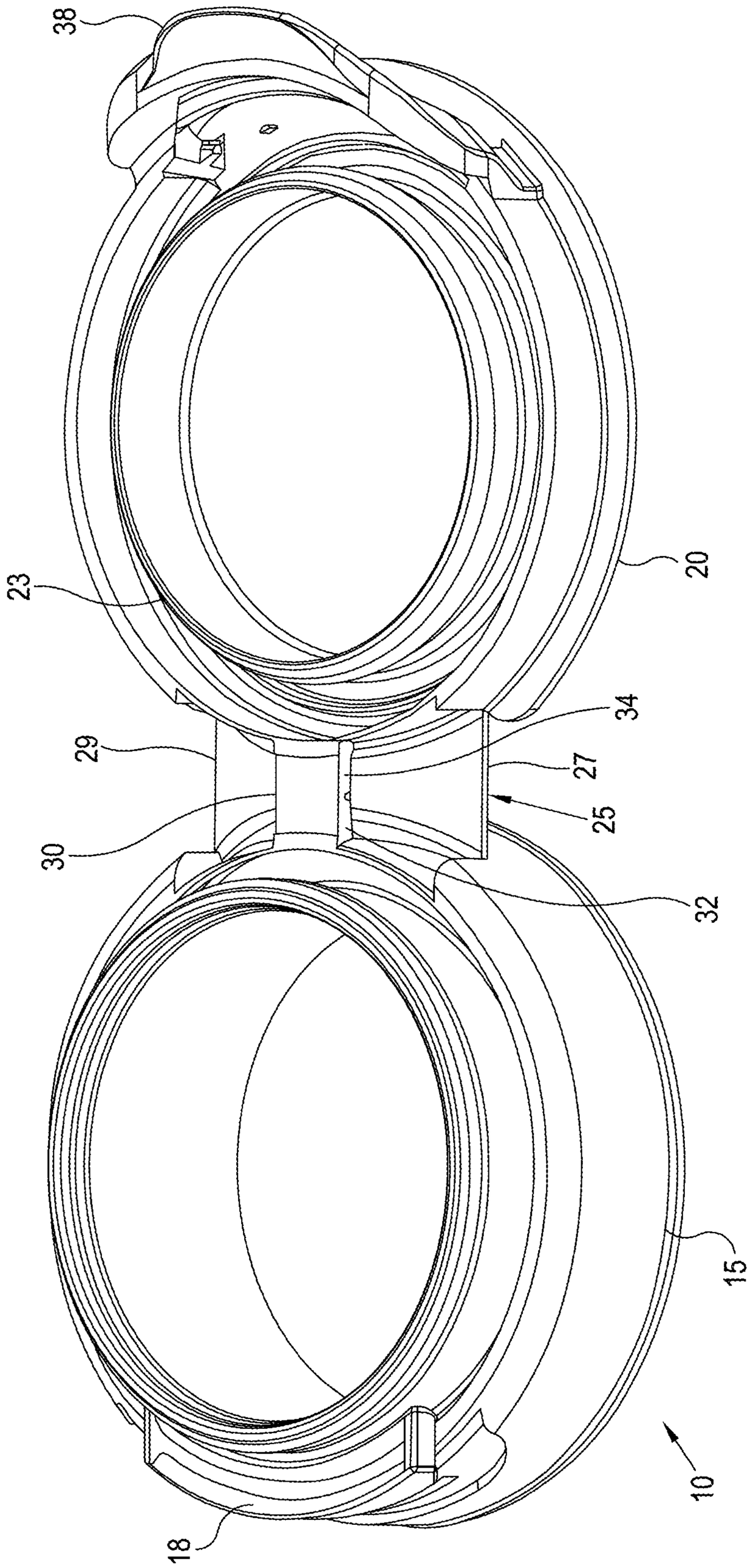

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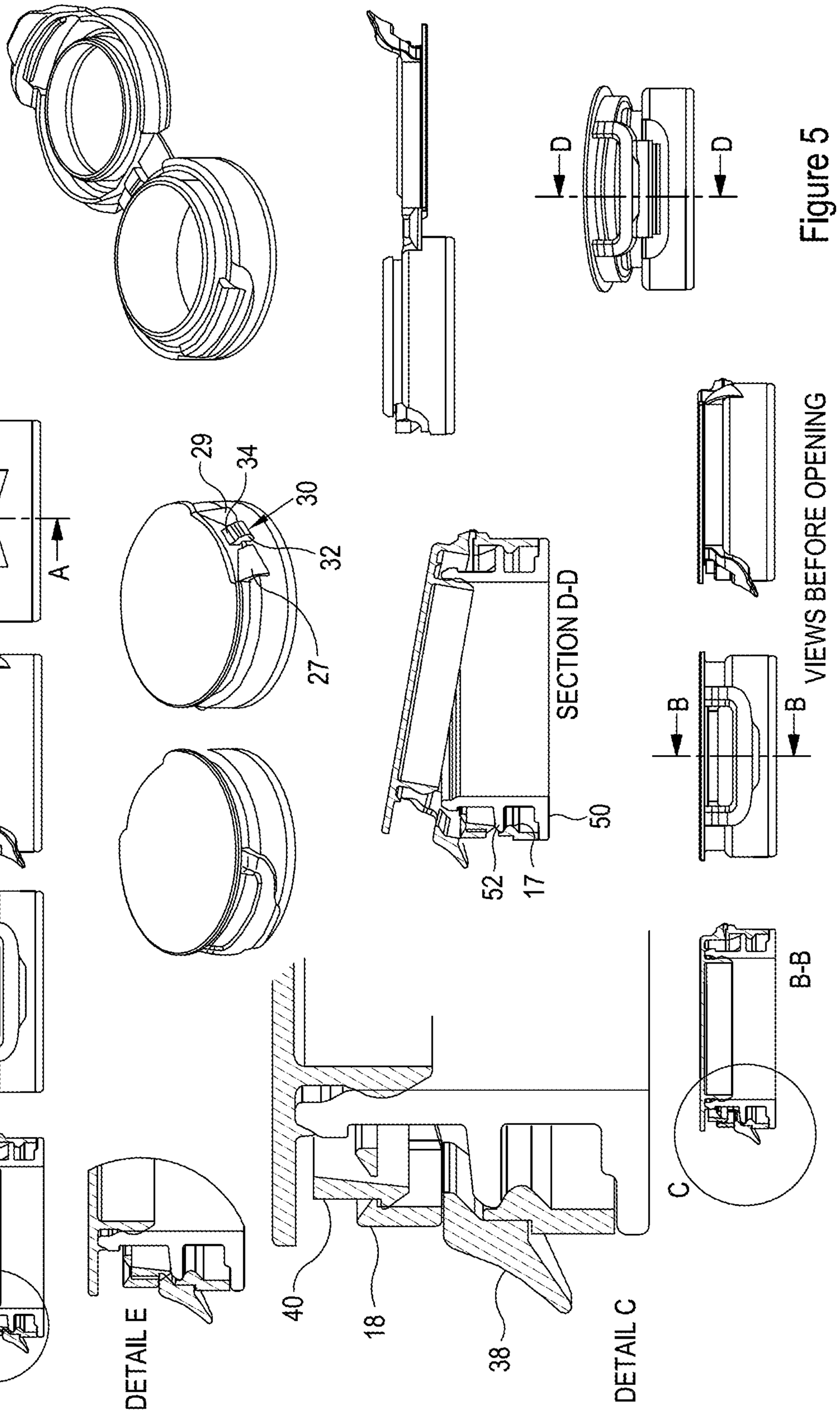
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VIEWS BEFORE OPENING
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D
D
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SECTION D-D
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SECTION A-A
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DETAIL E
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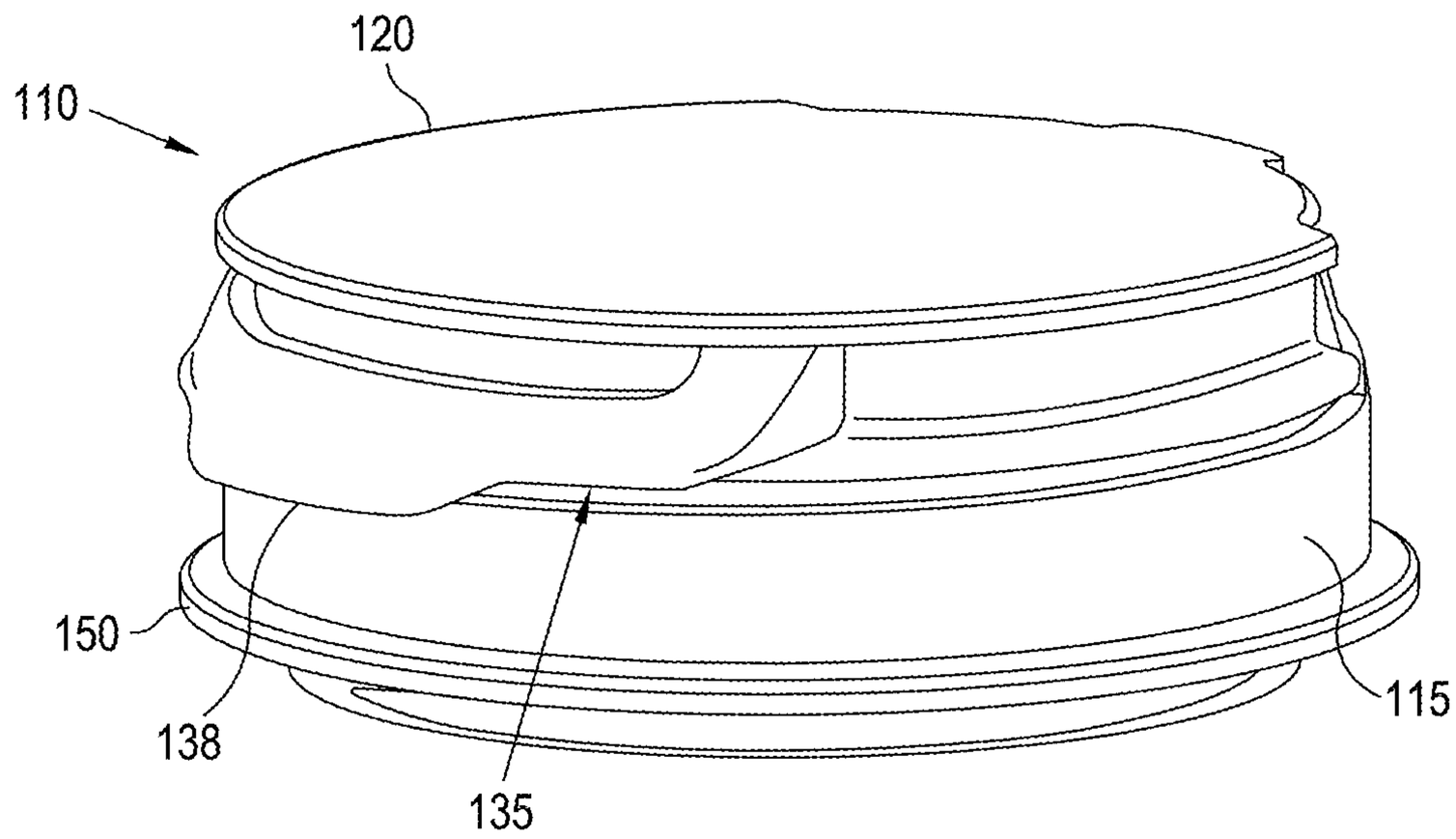
DETAIL C
C
B-B

Figure 5



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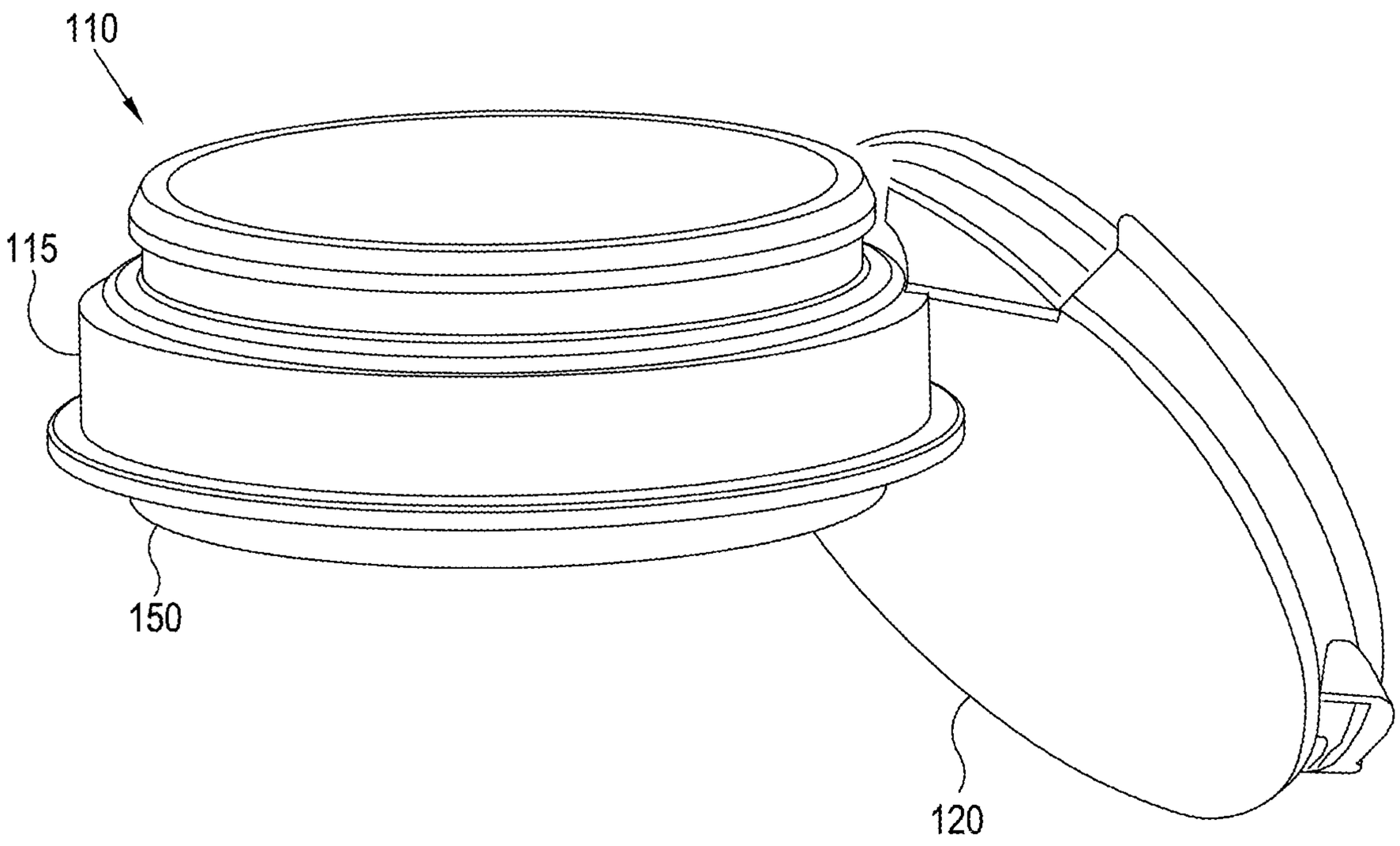

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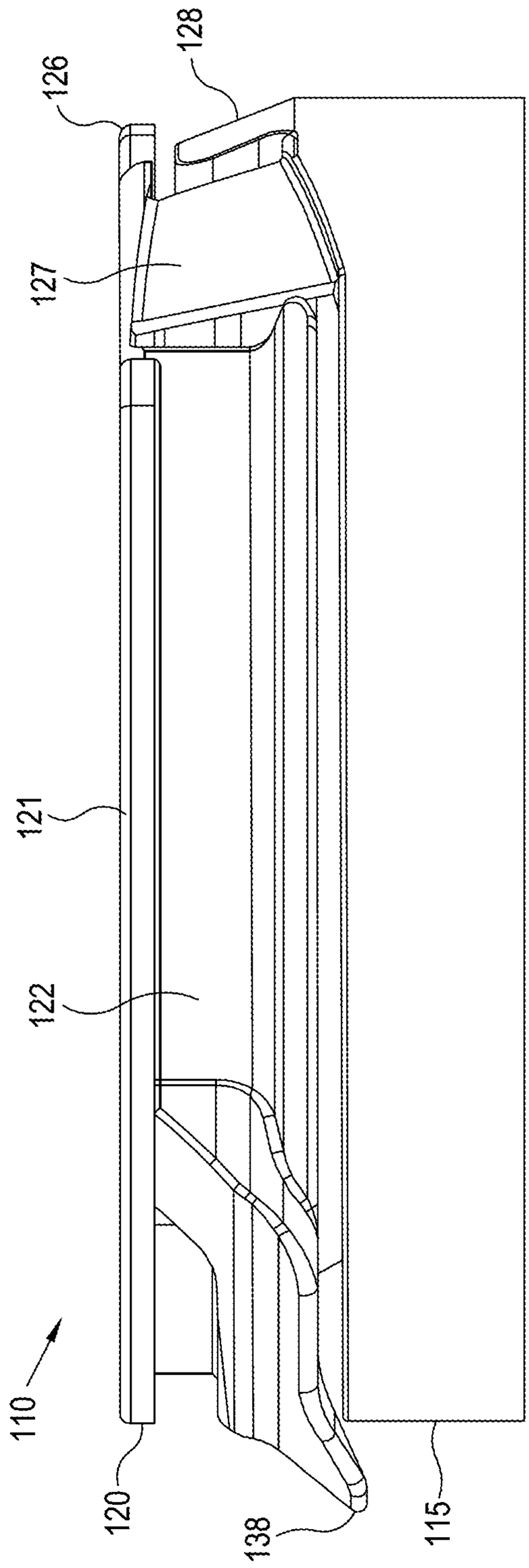

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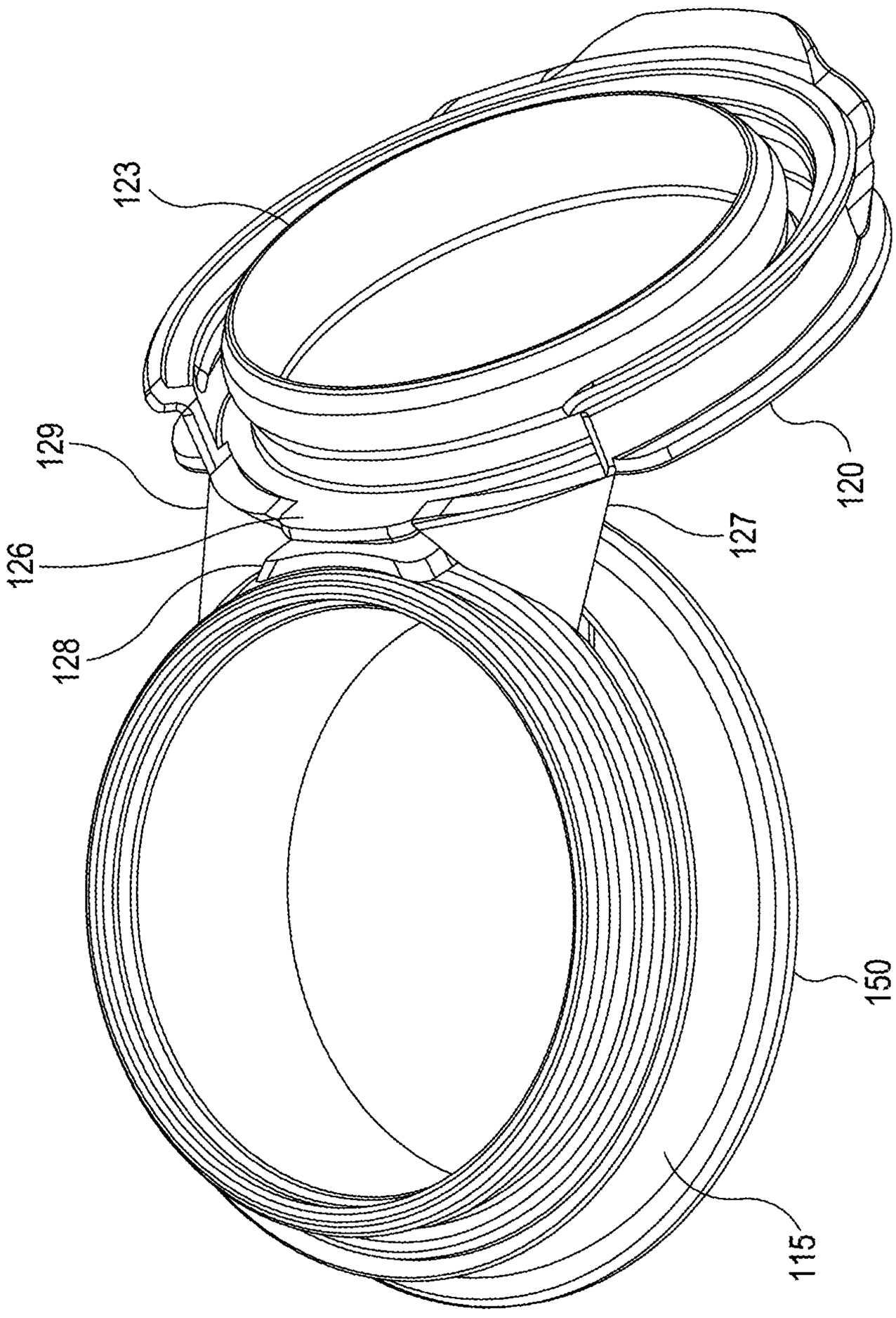

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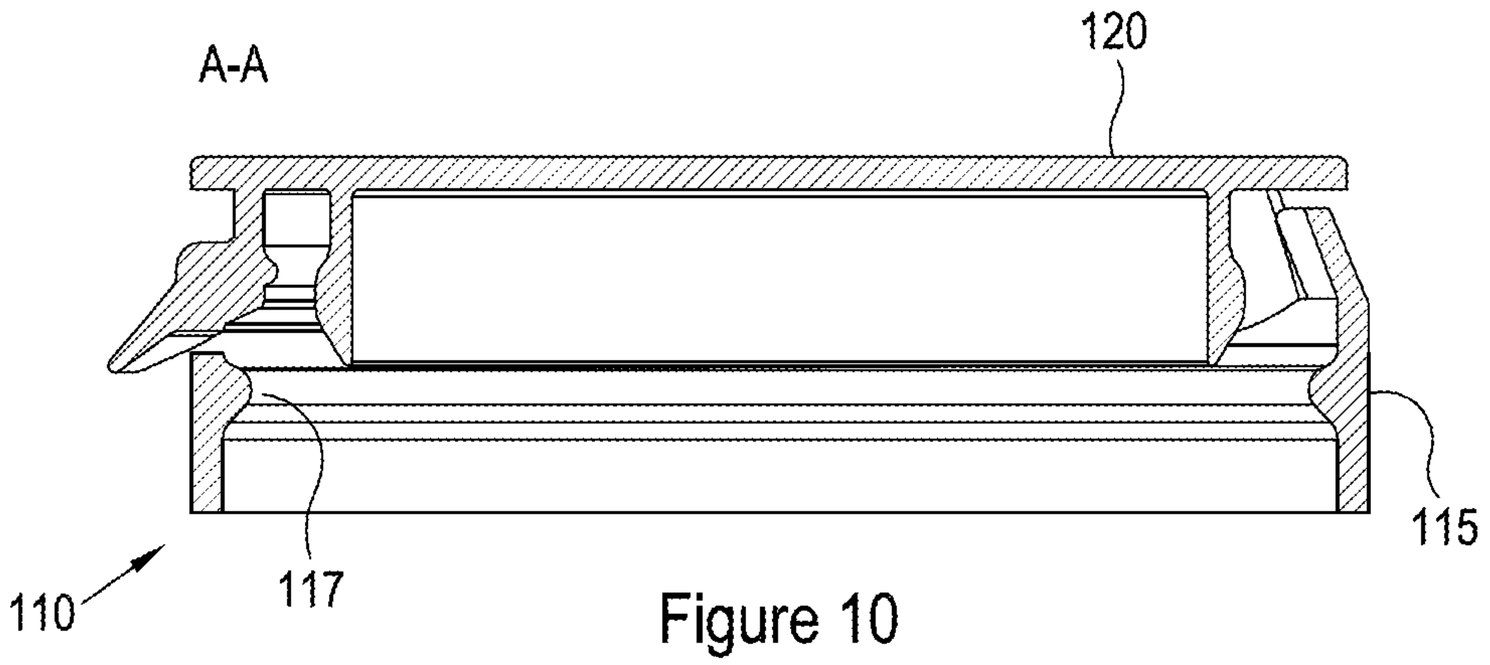

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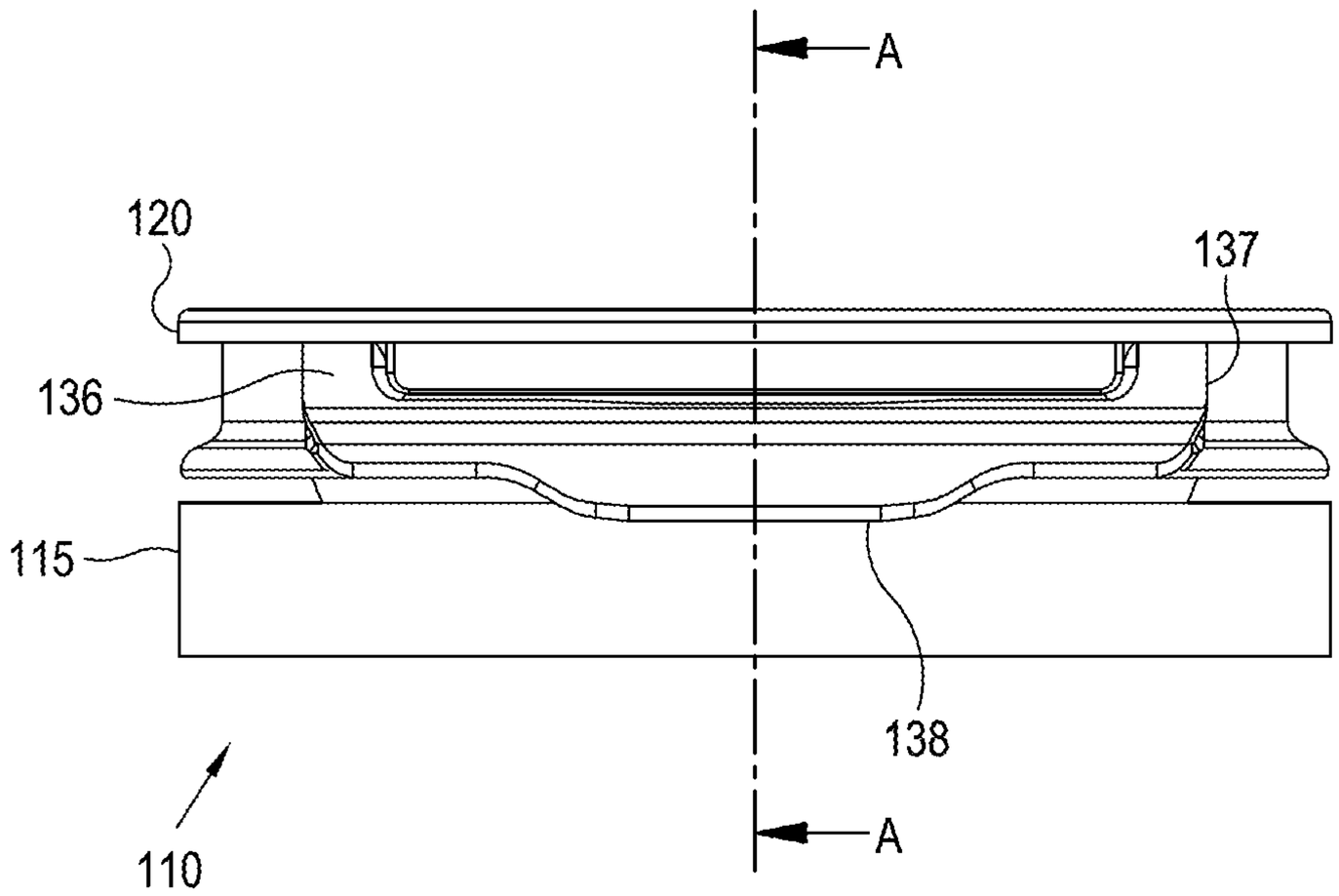

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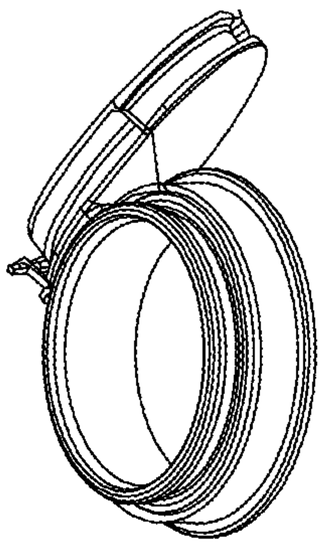

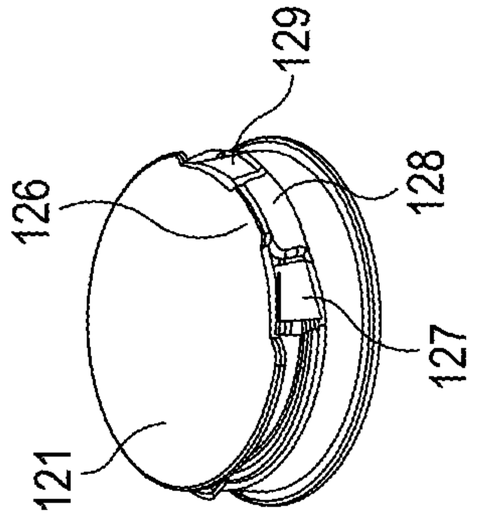
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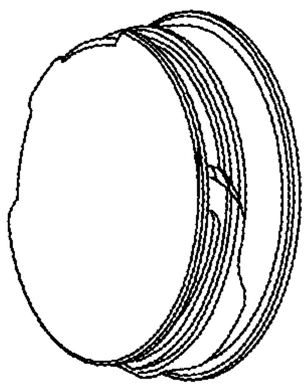

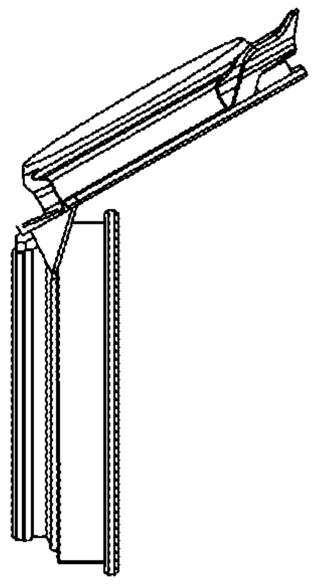

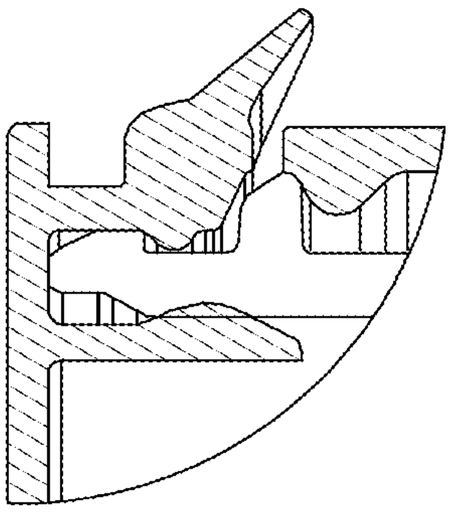
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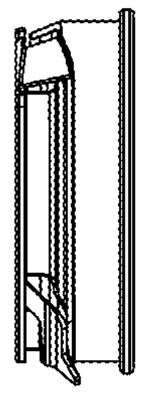

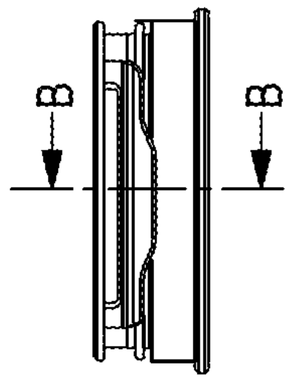
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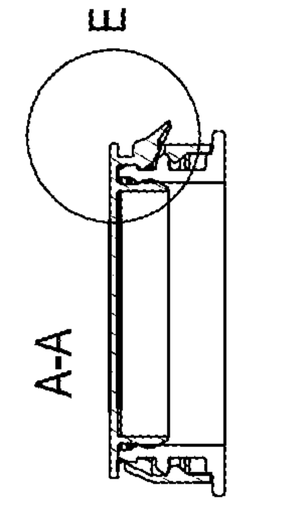
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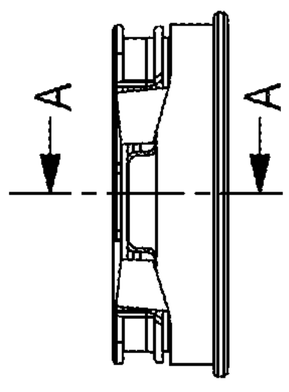
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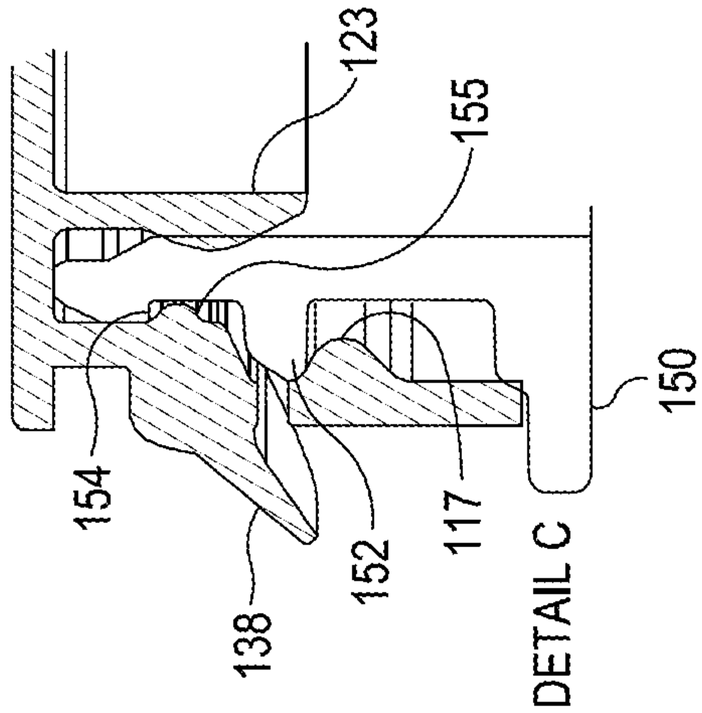
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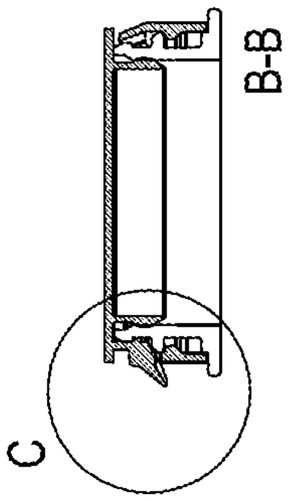
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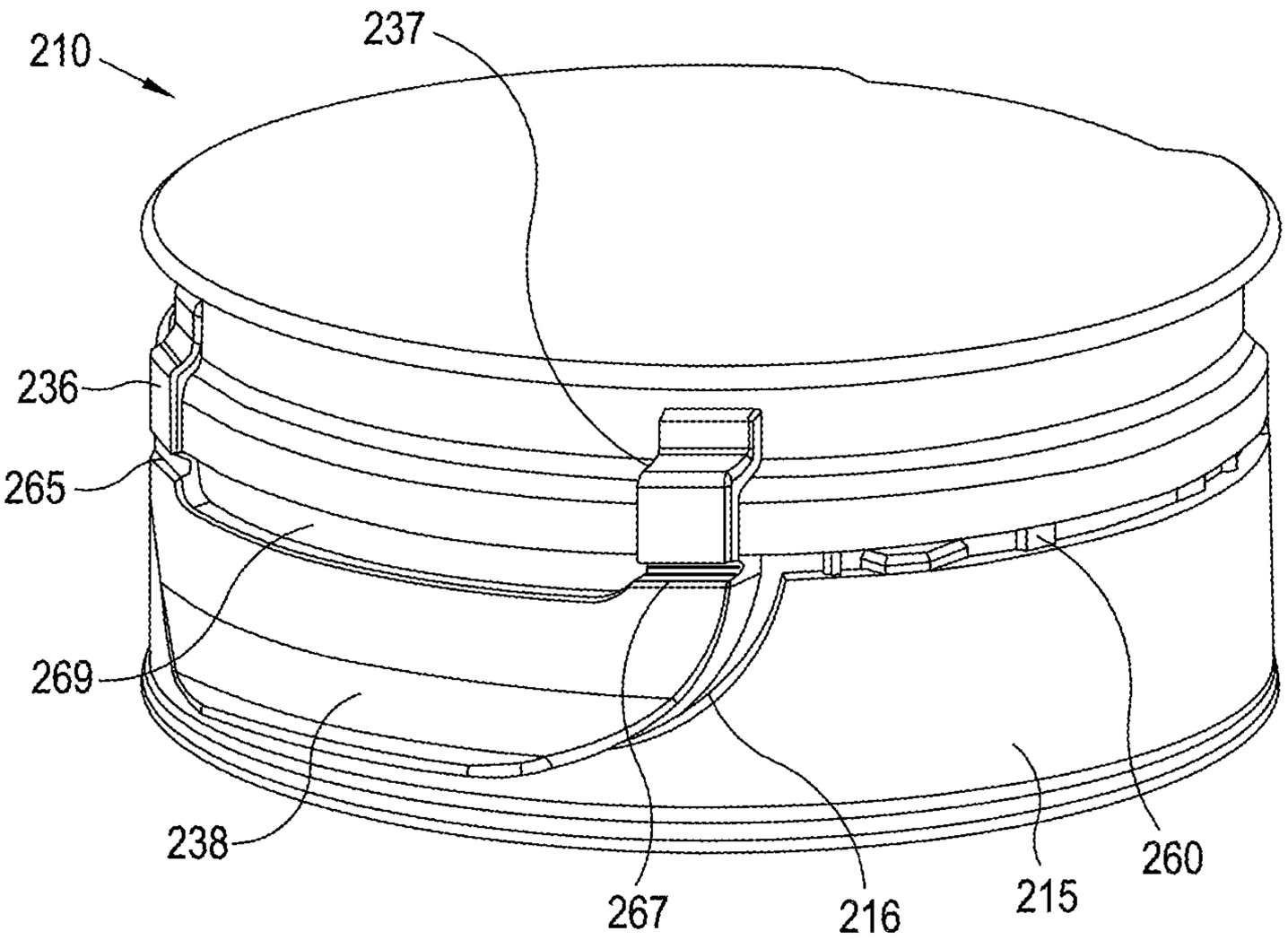

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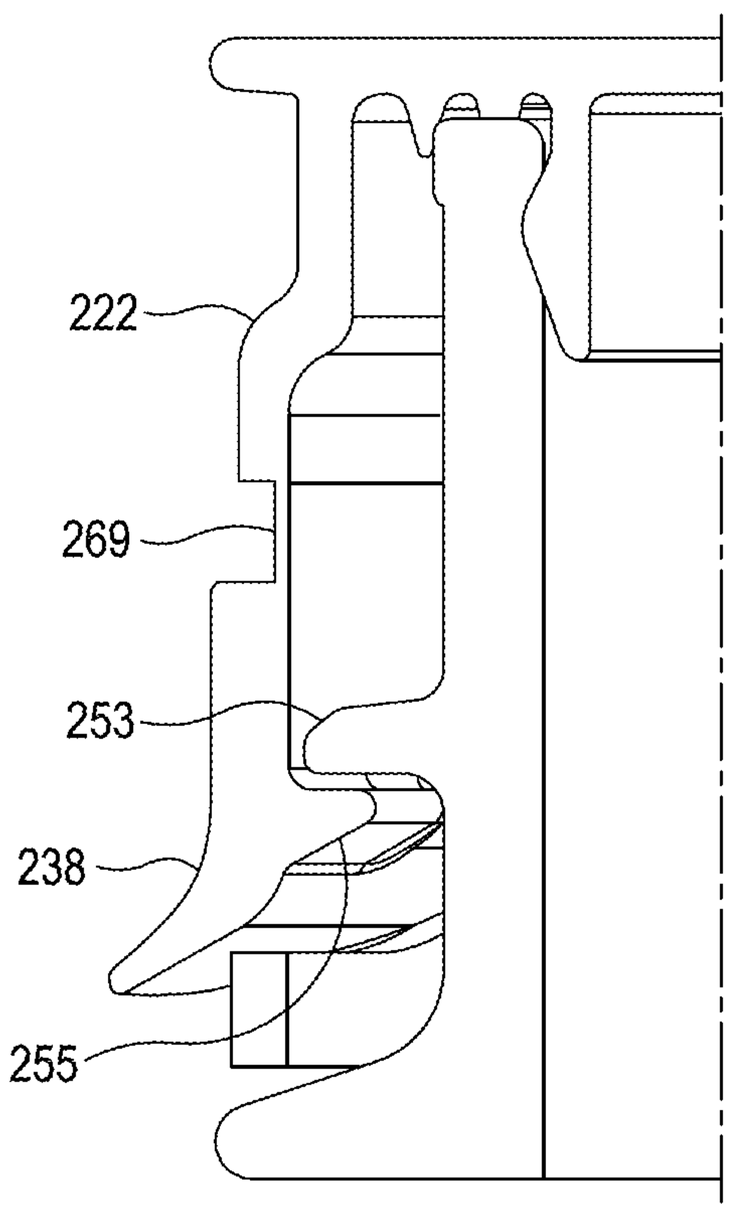

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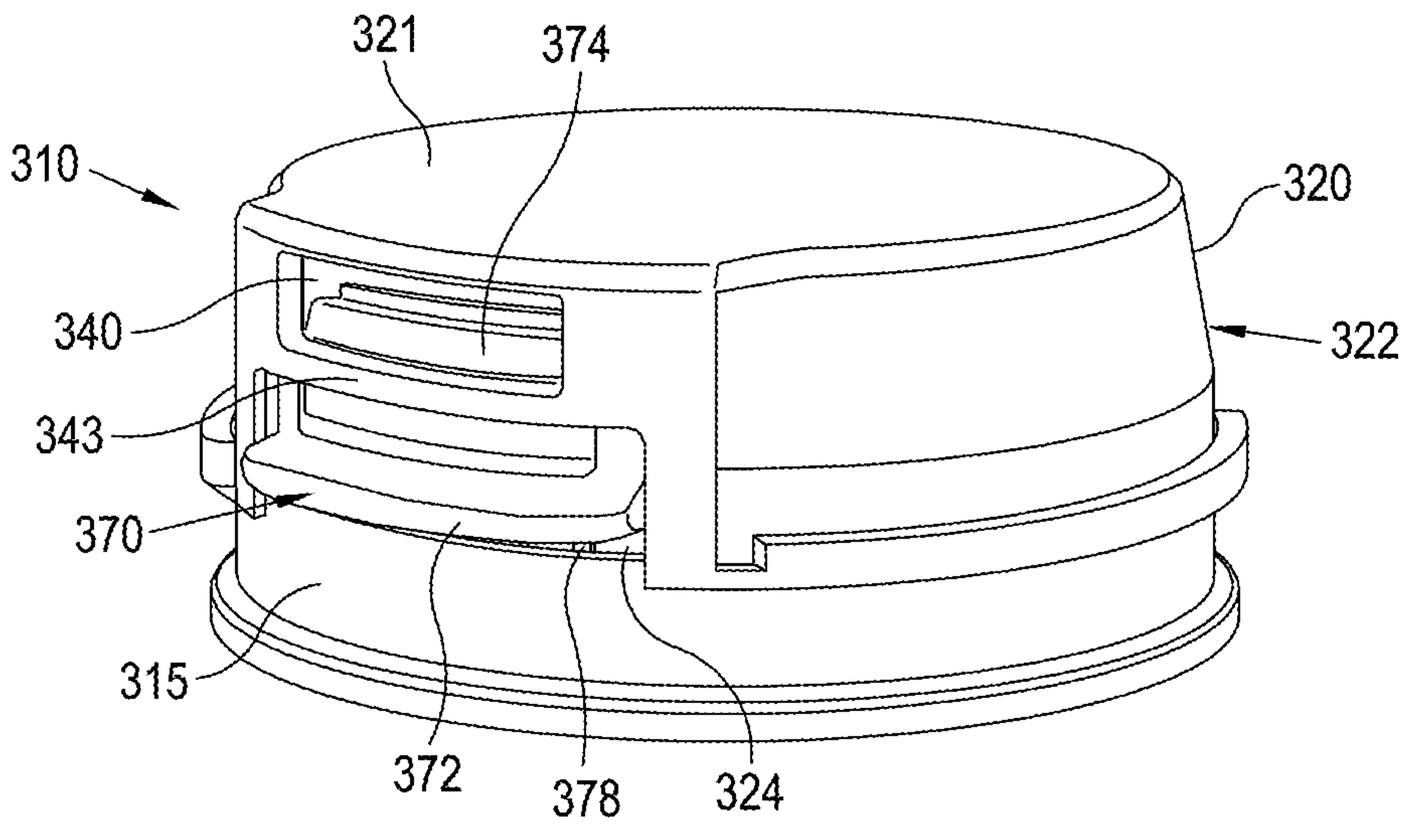

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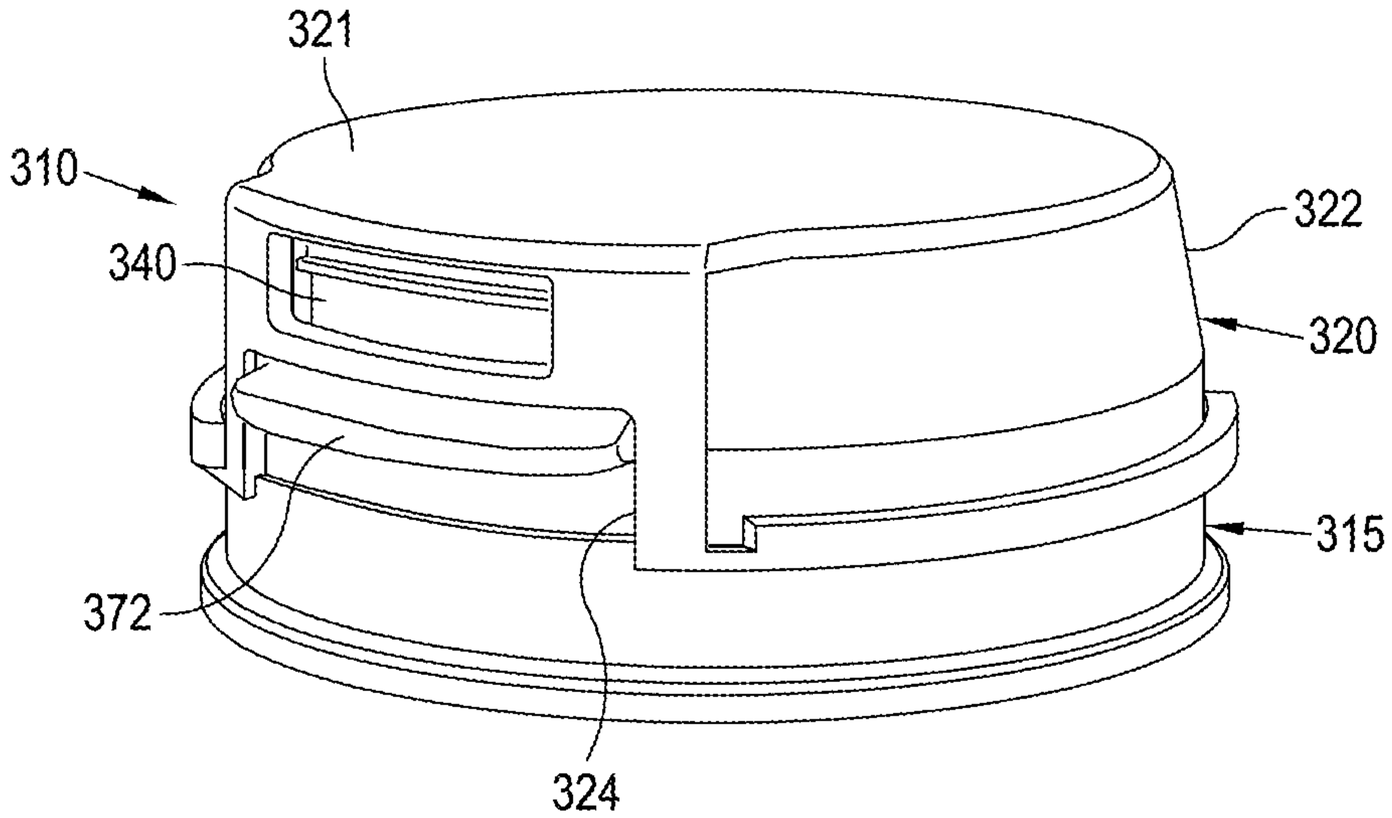

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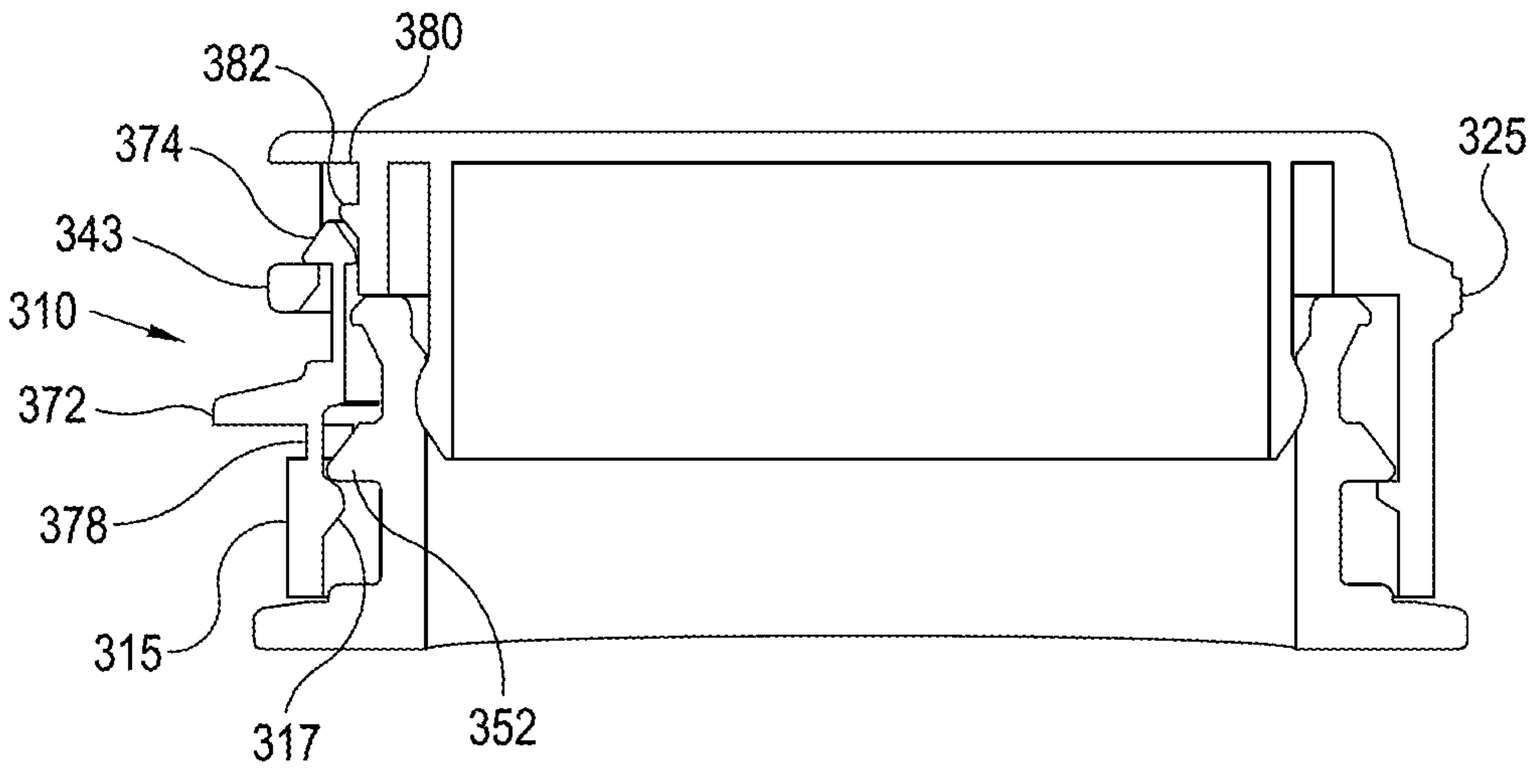

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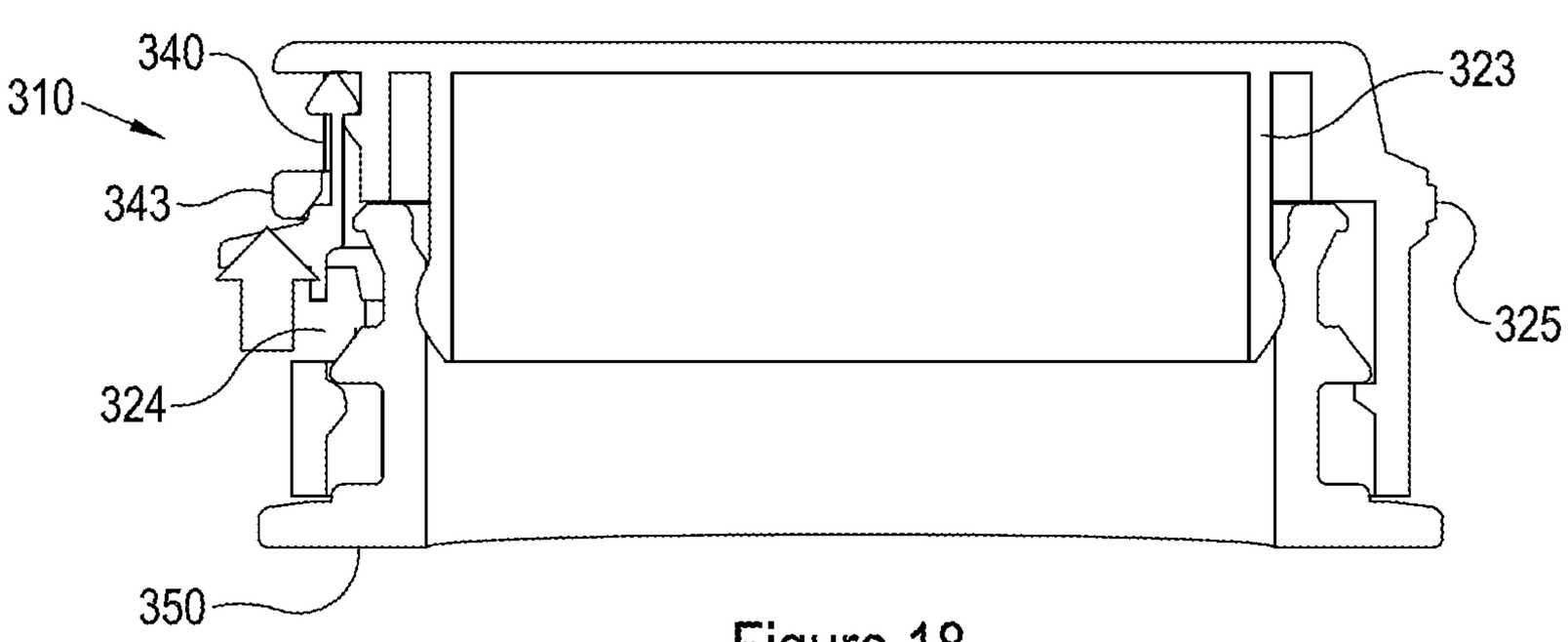

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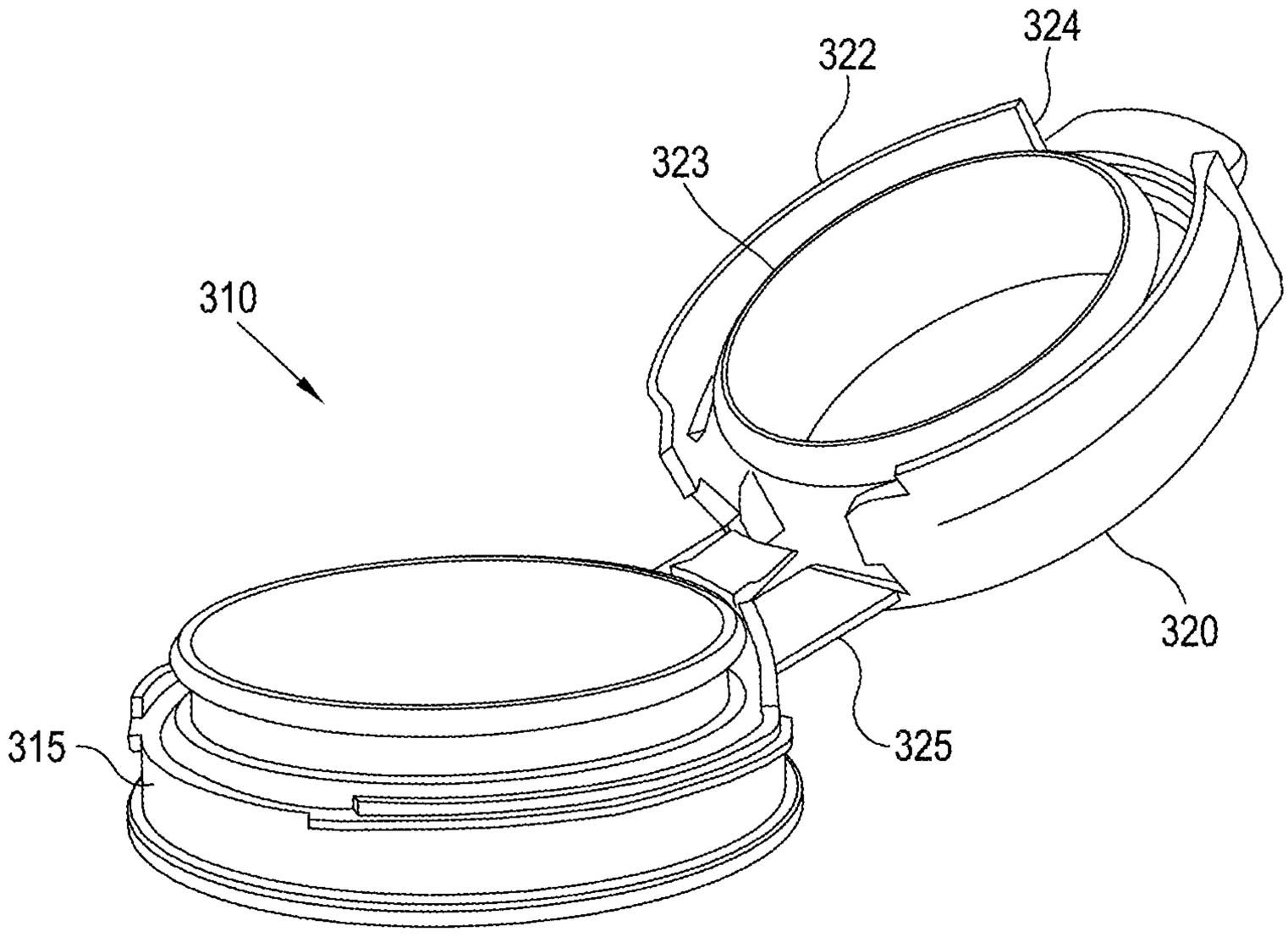

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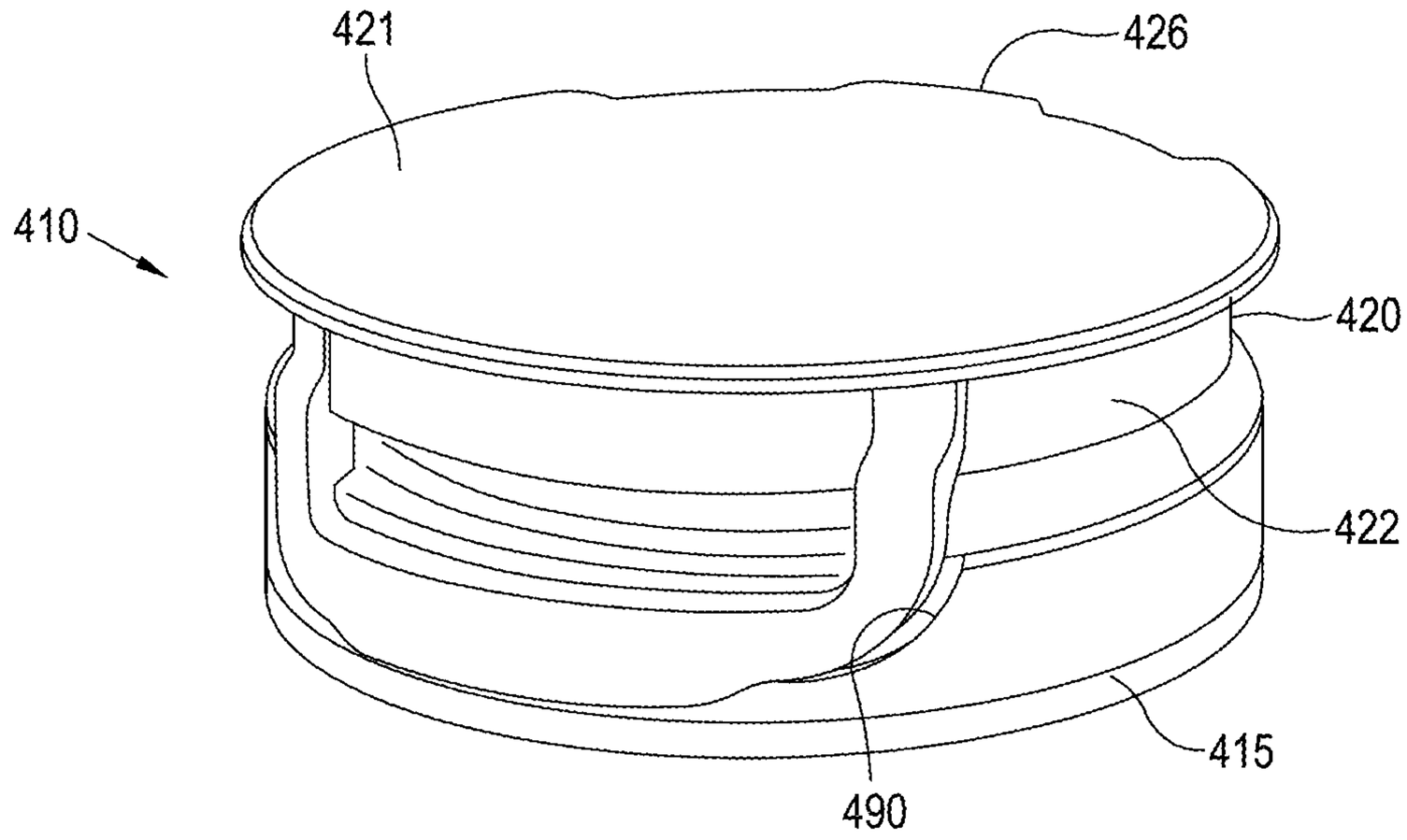

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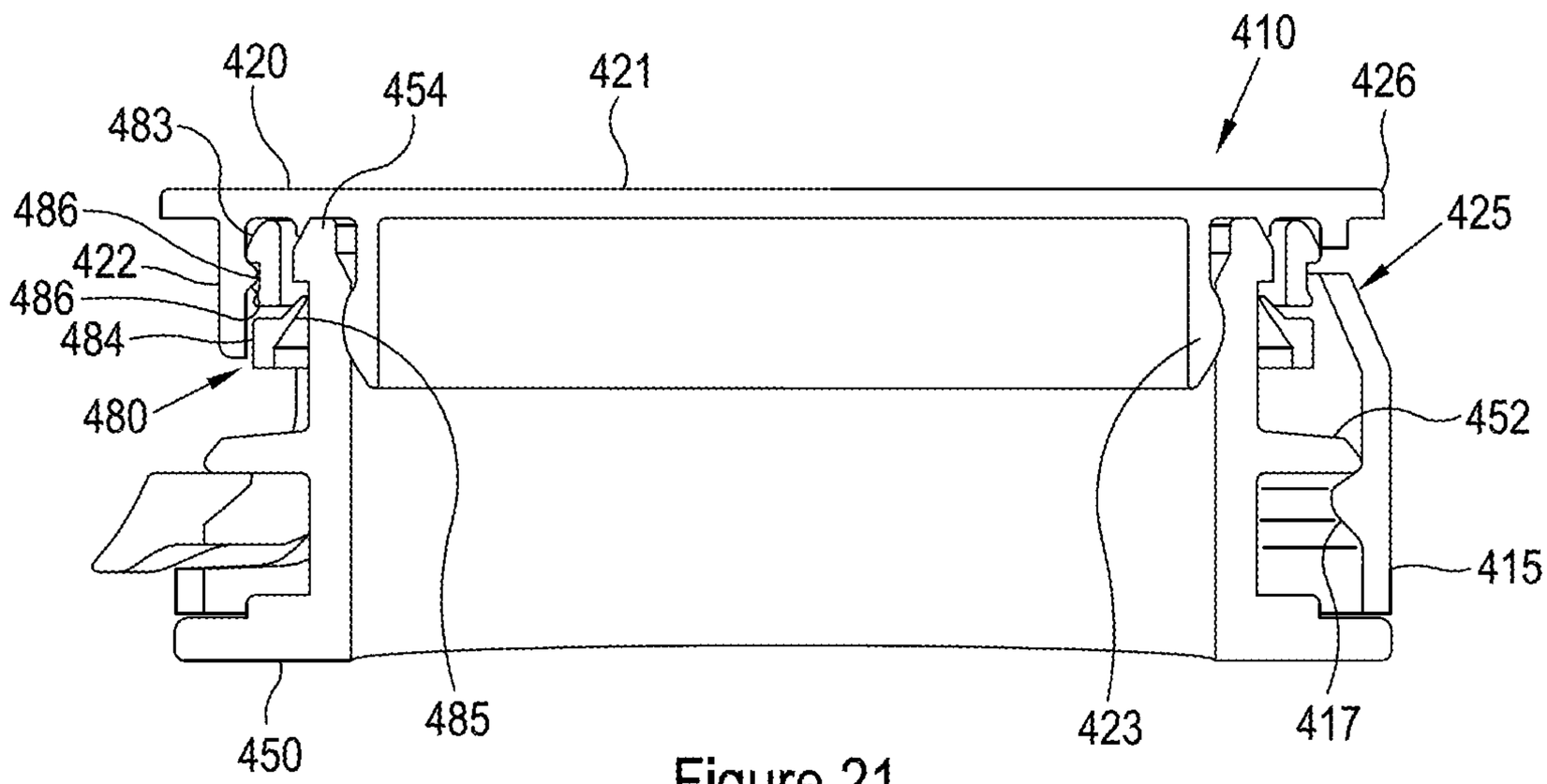

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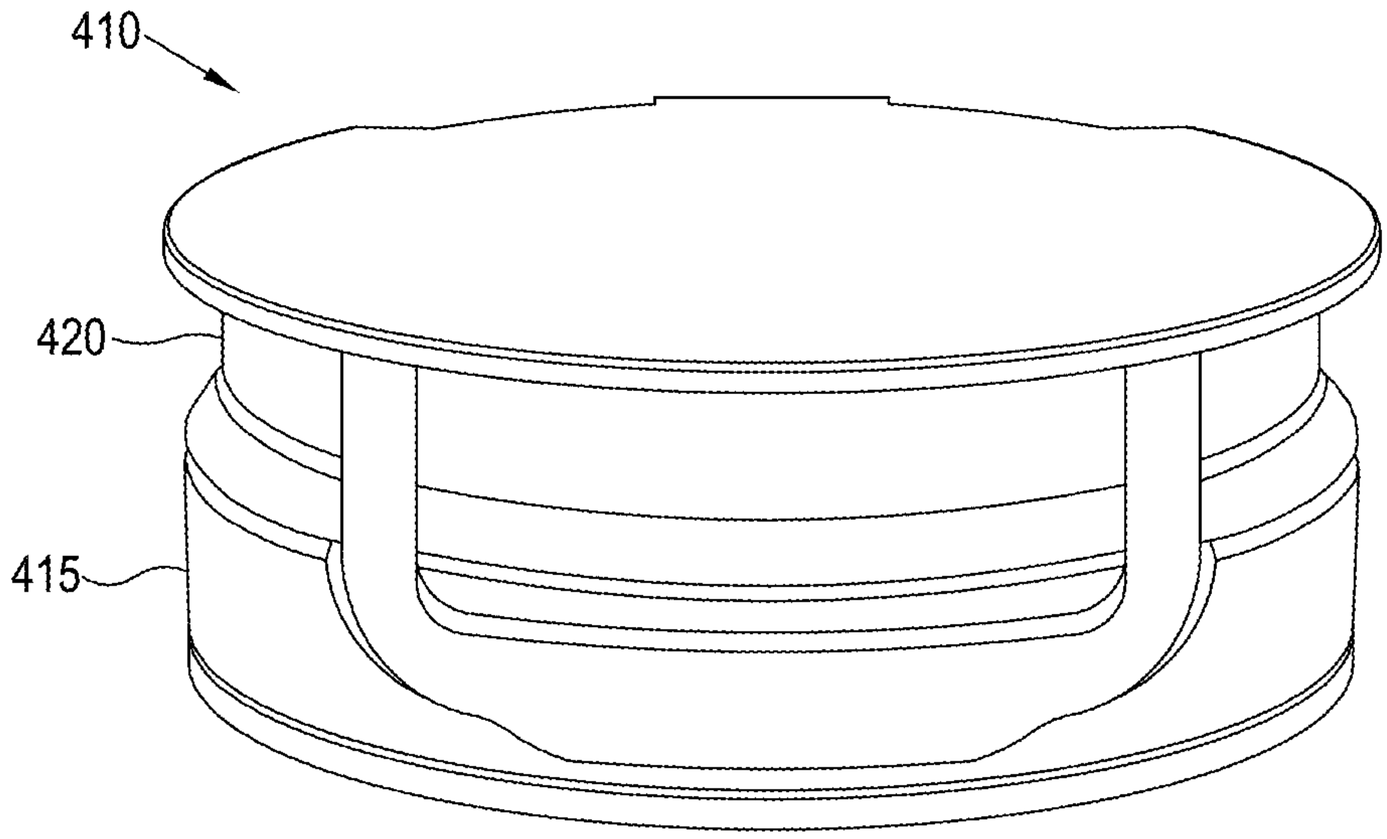

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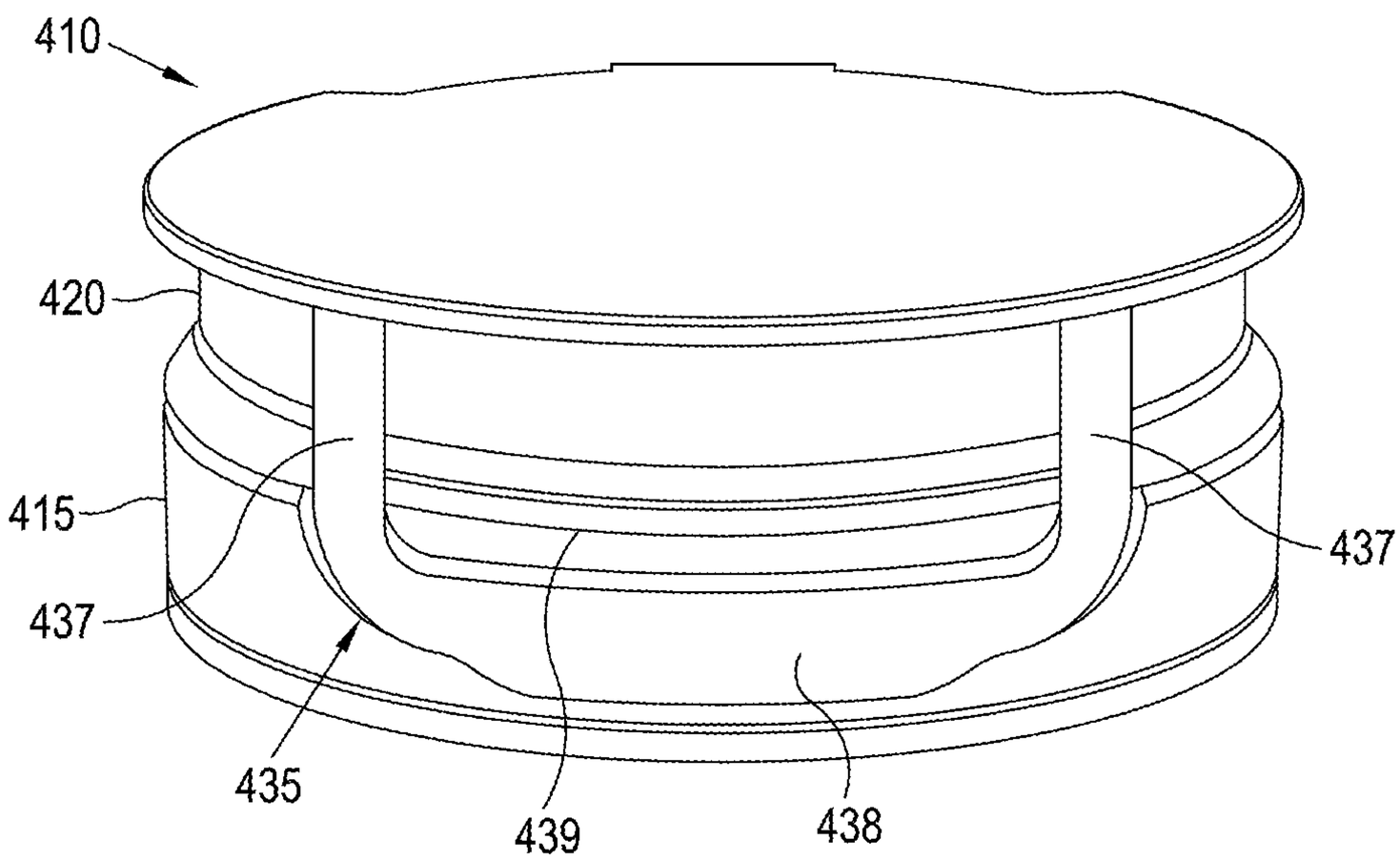

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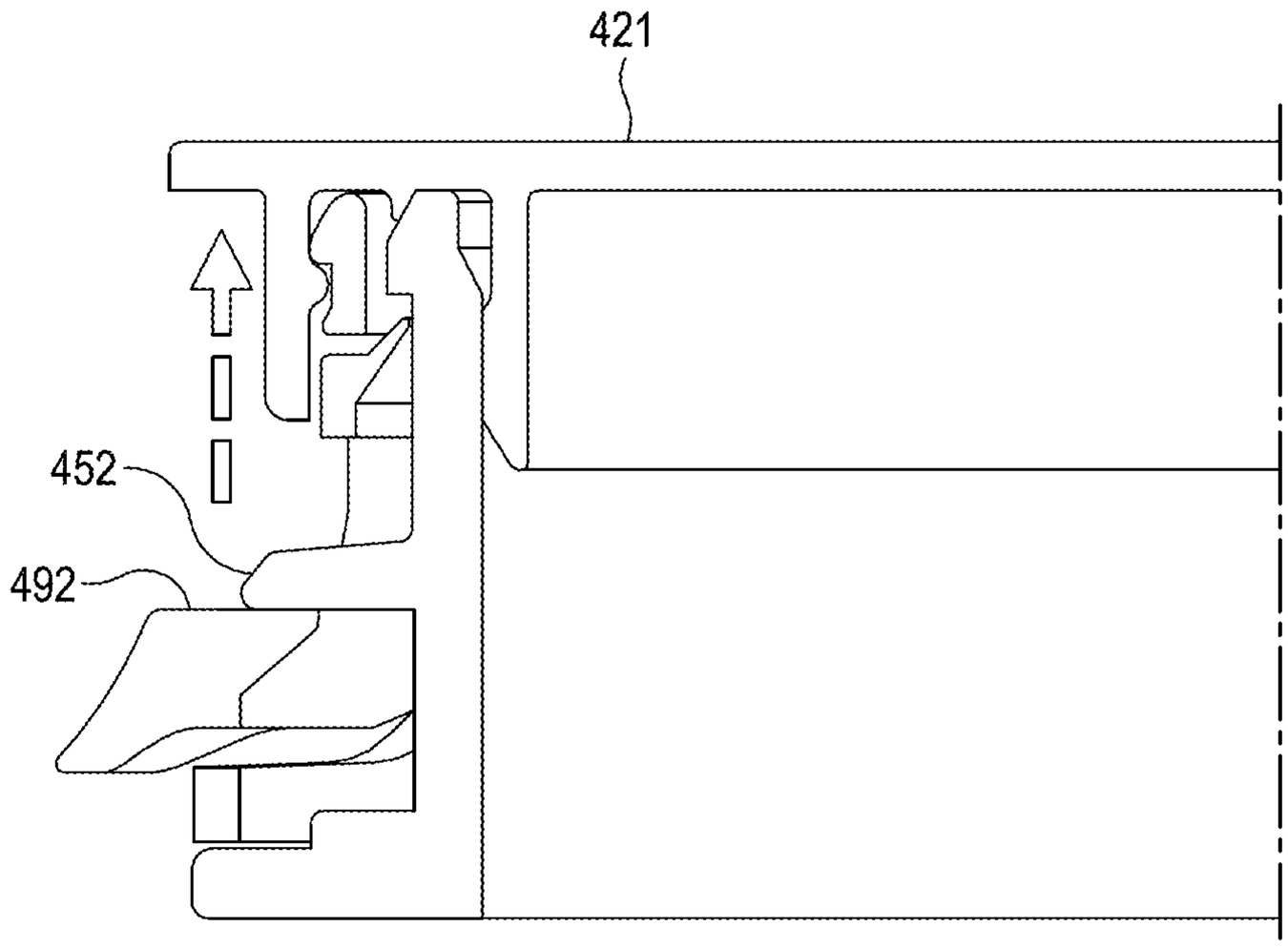

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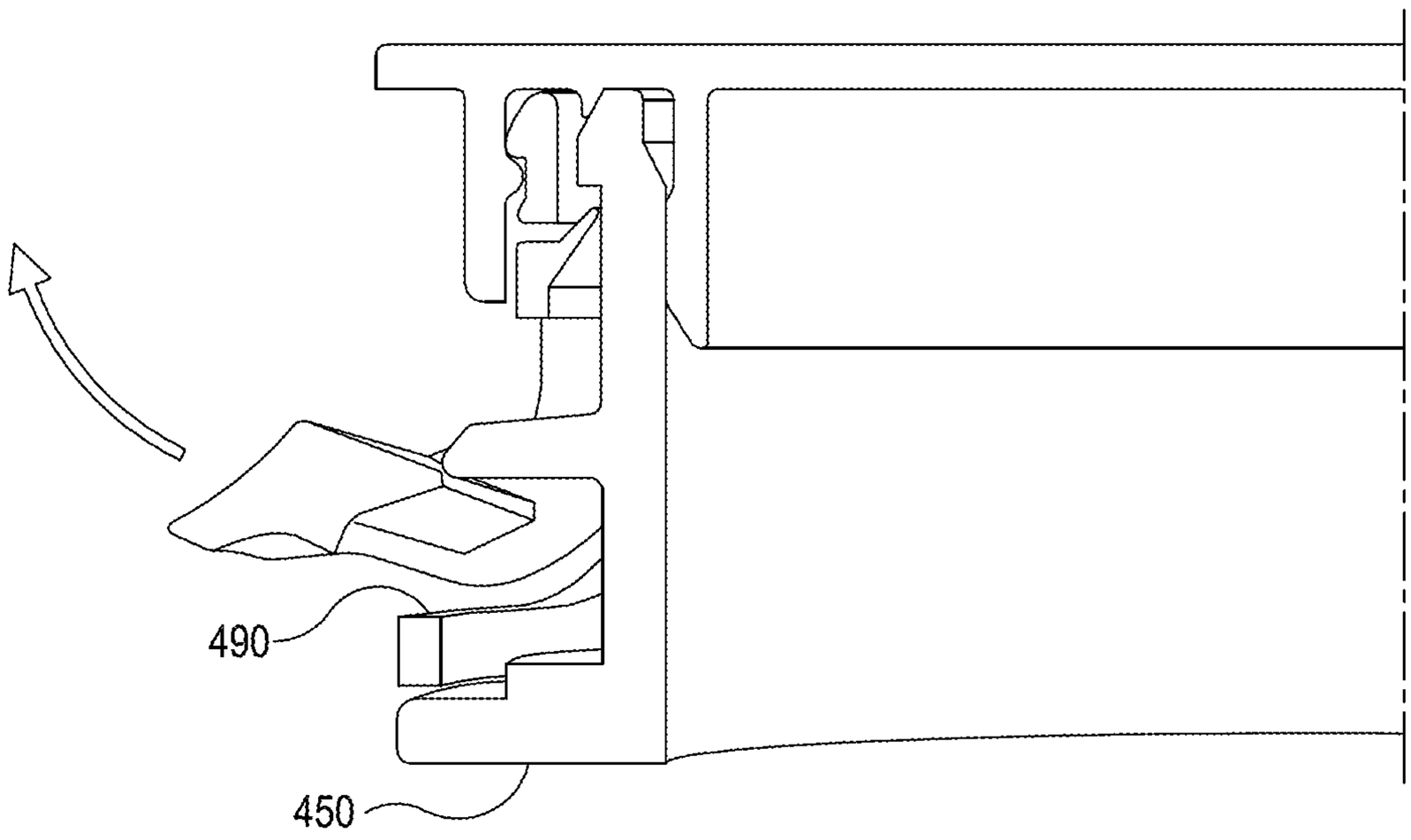

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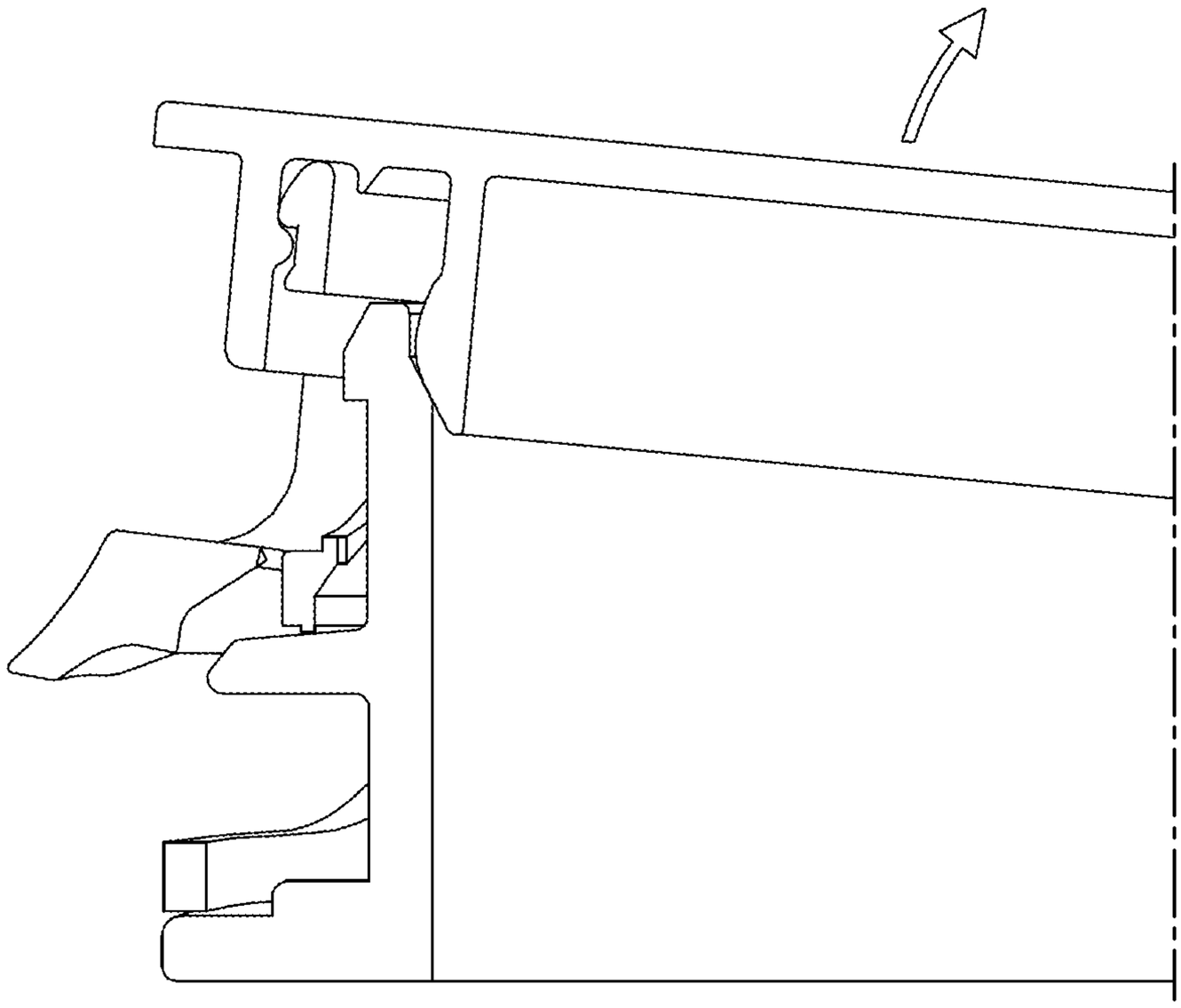

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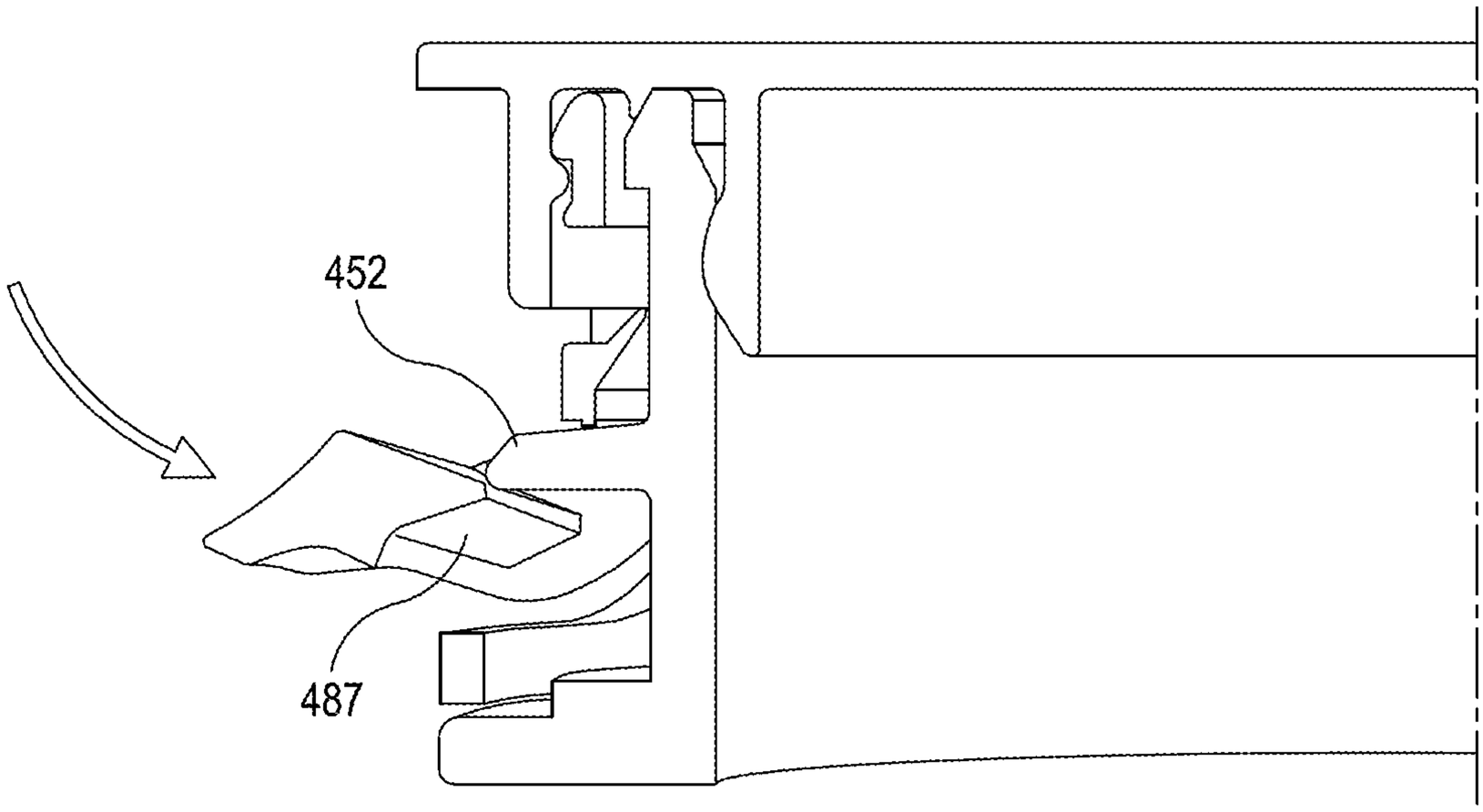

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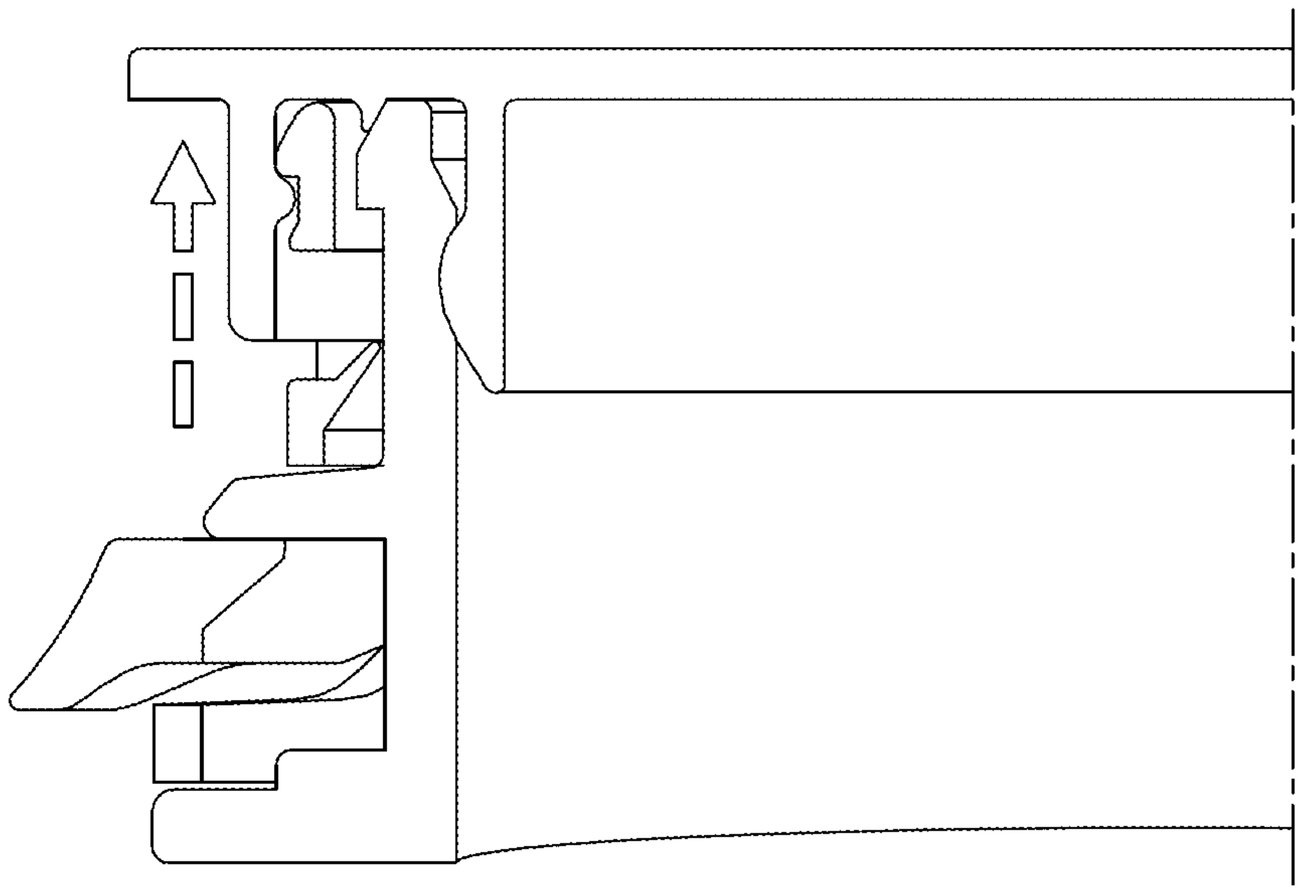

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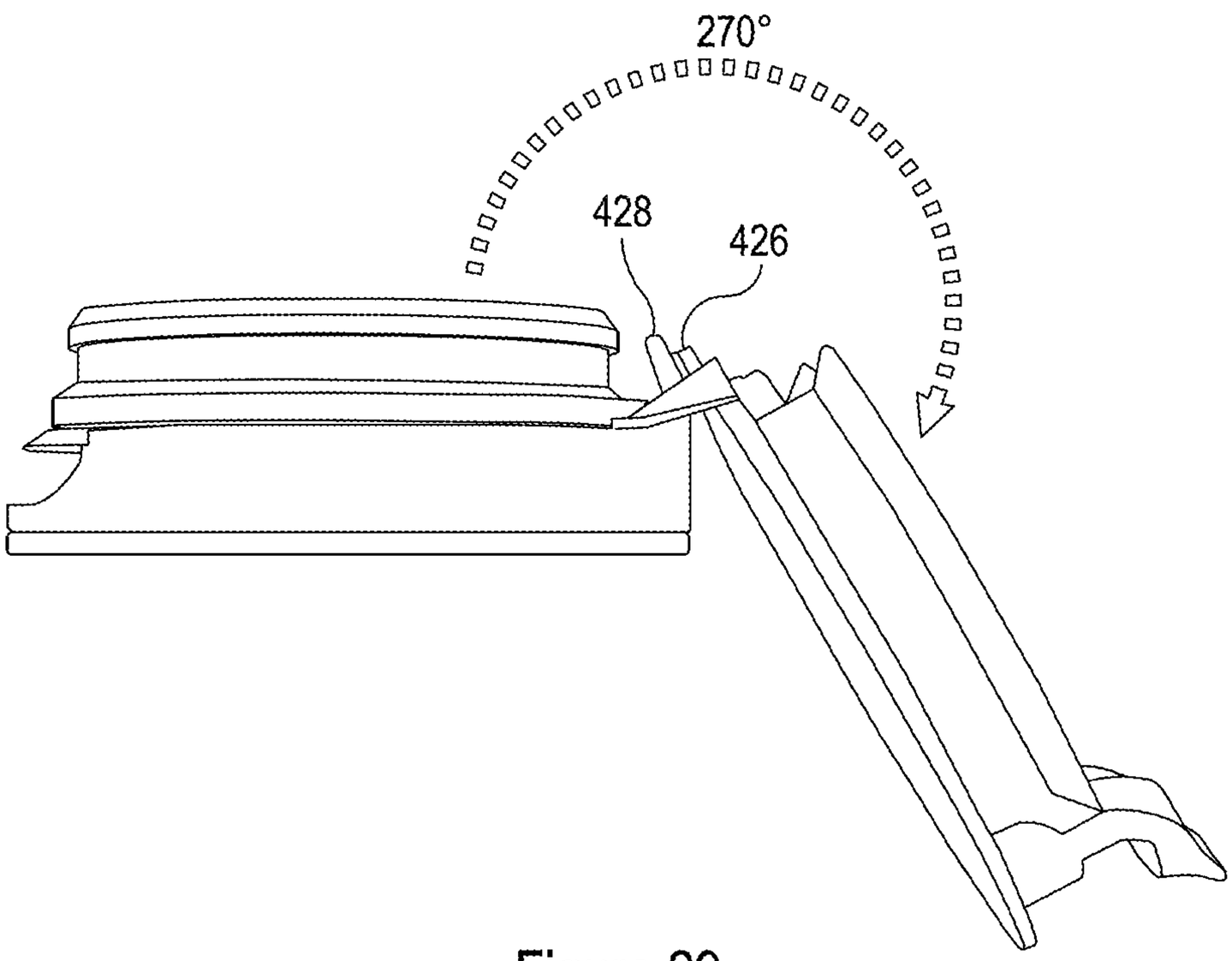

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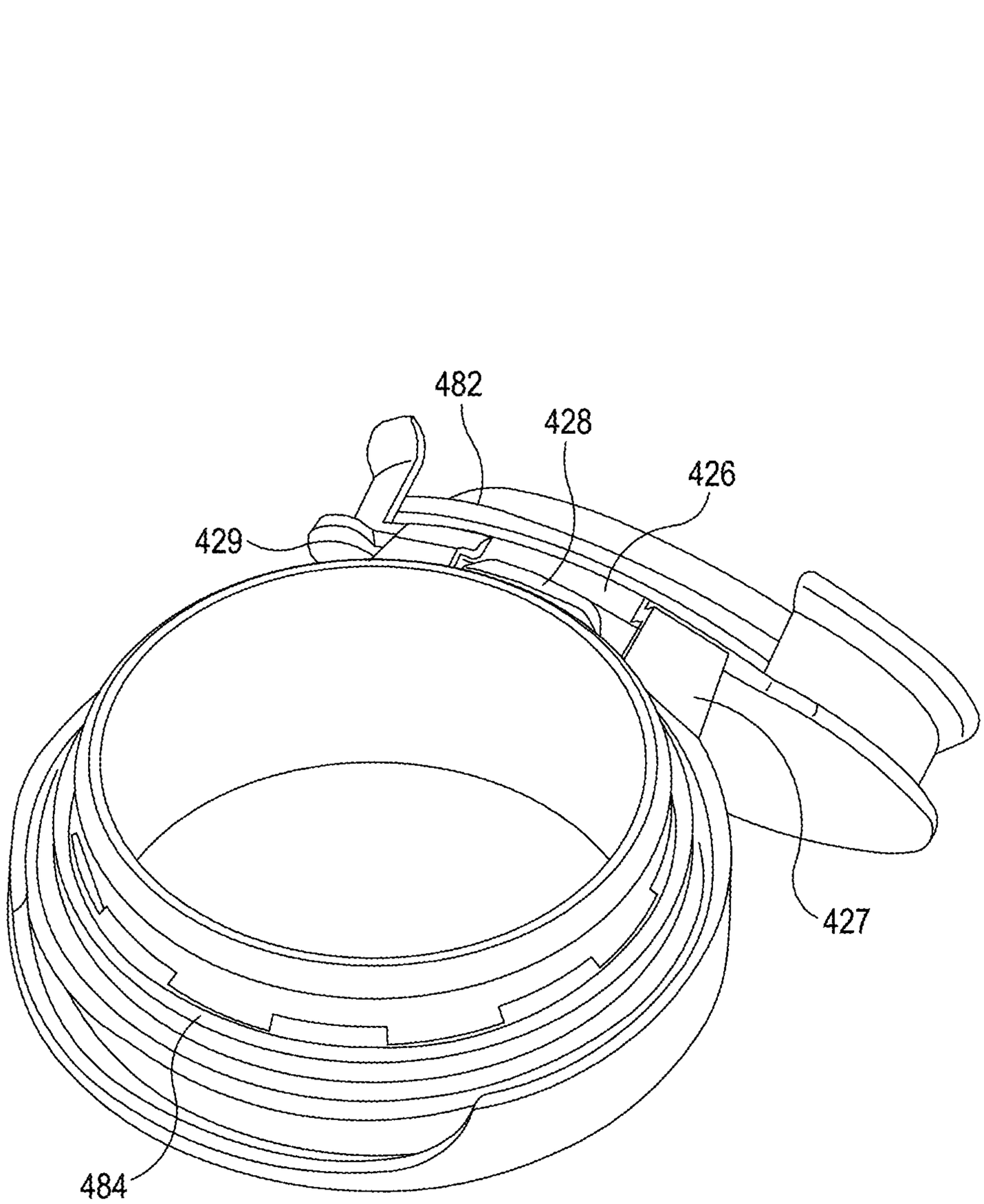

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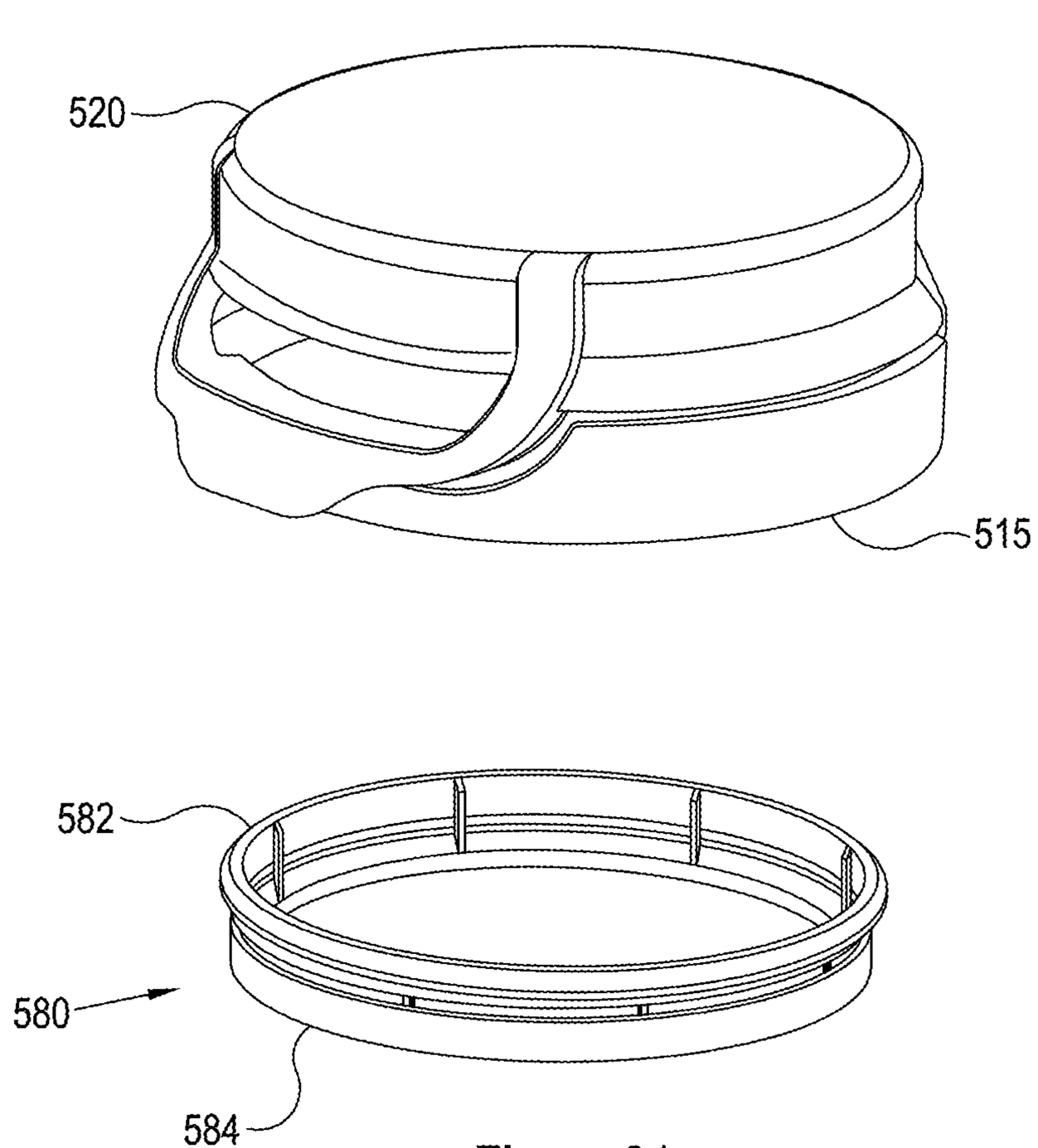

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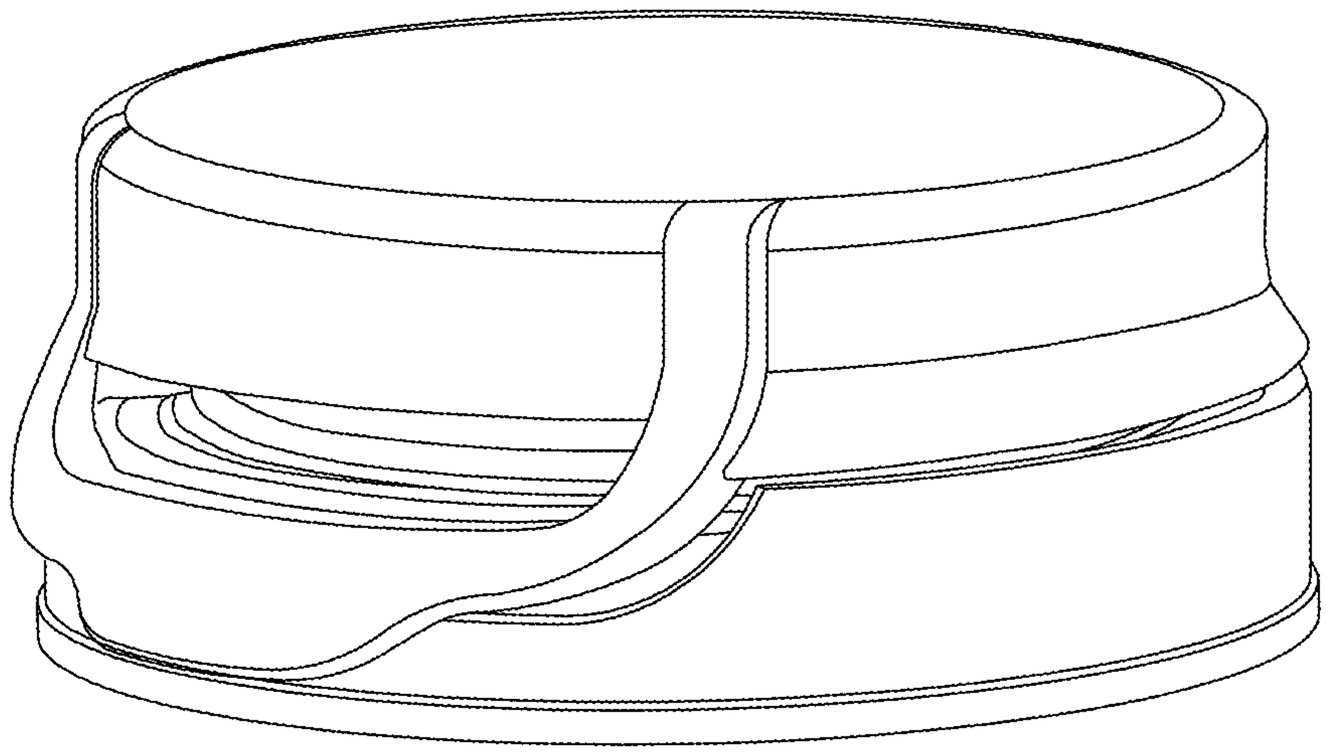

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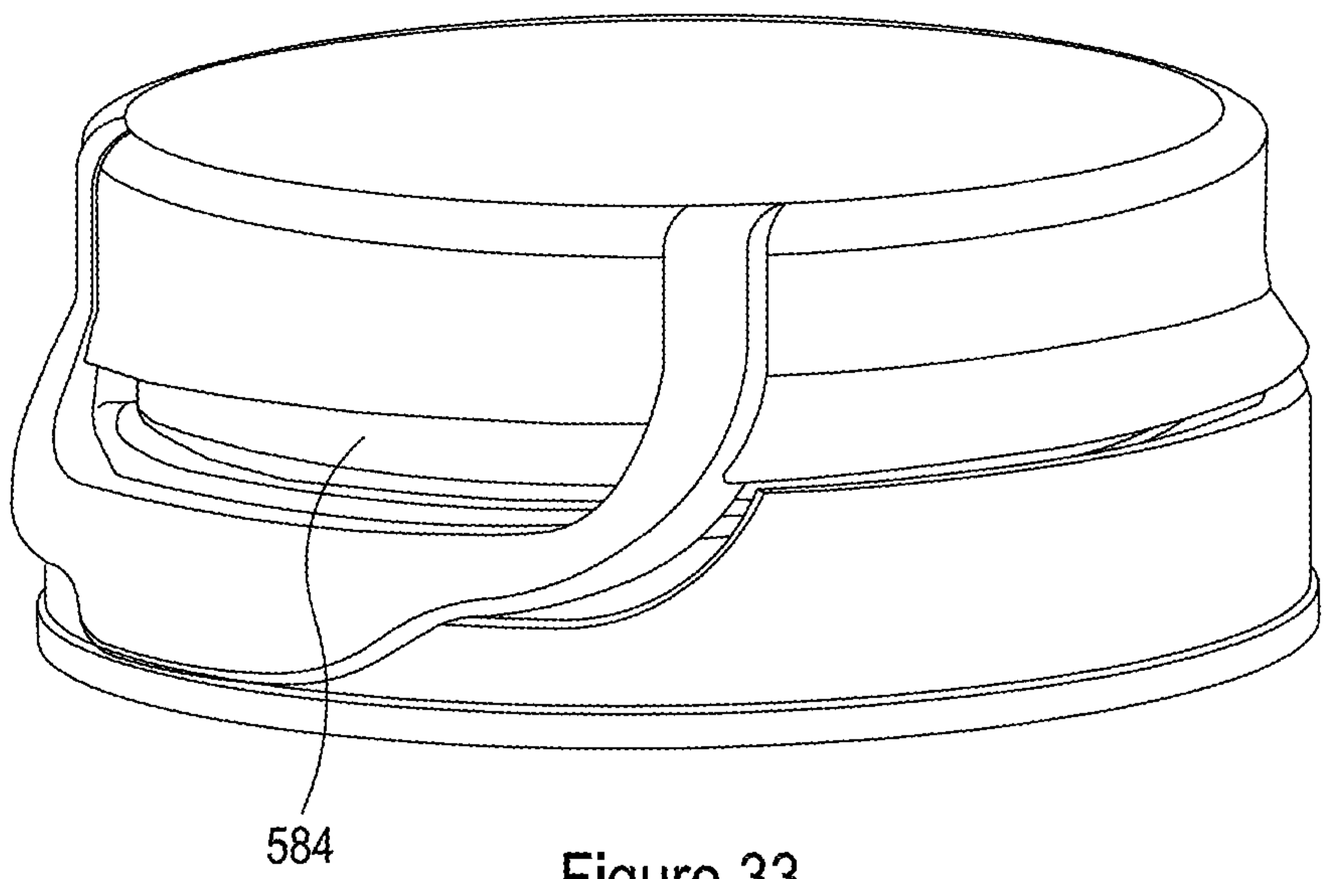

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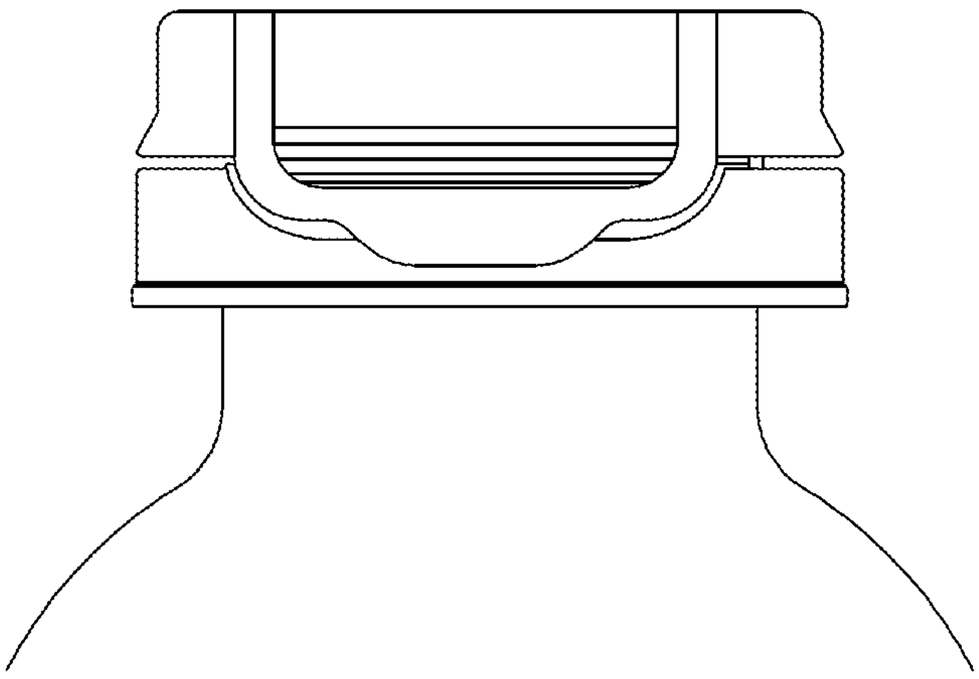

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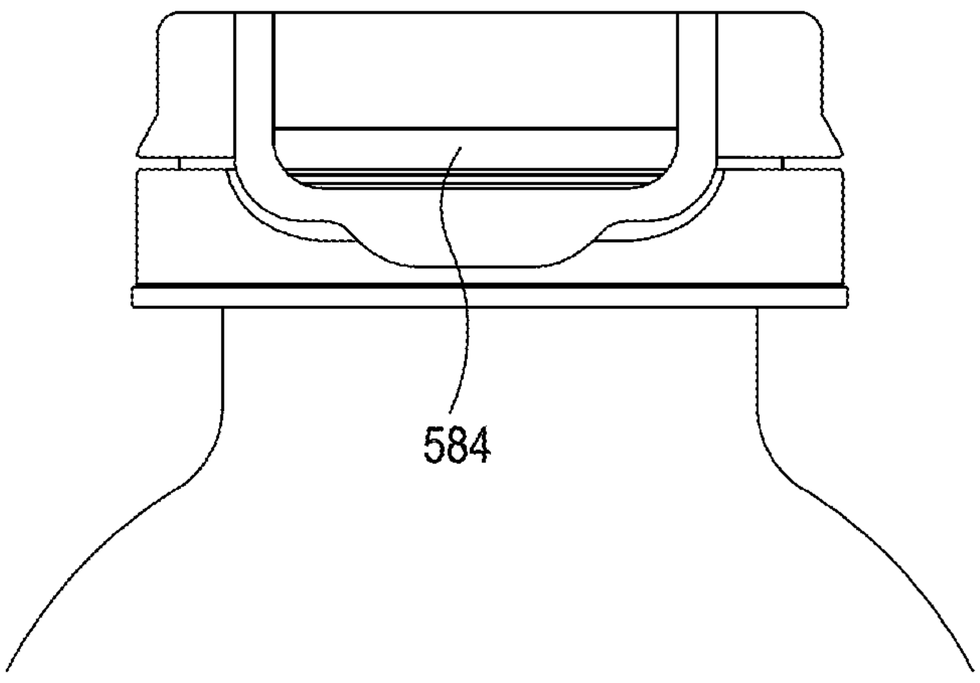

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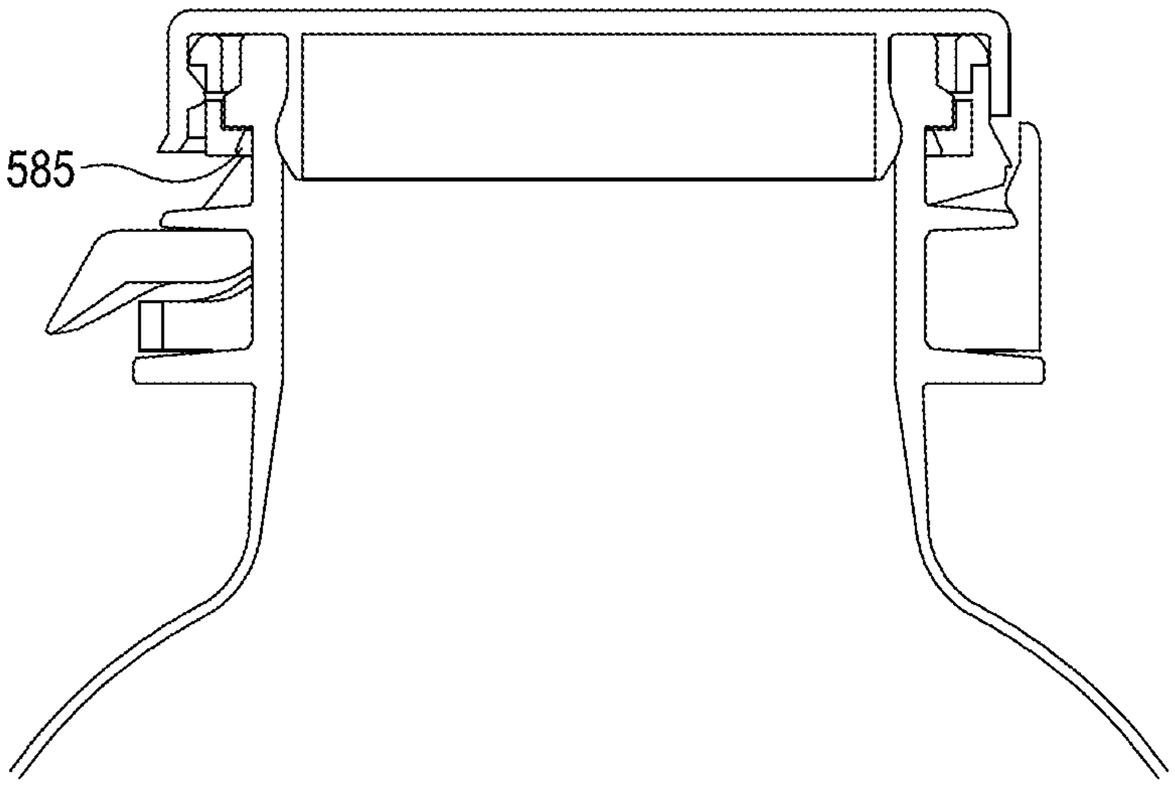

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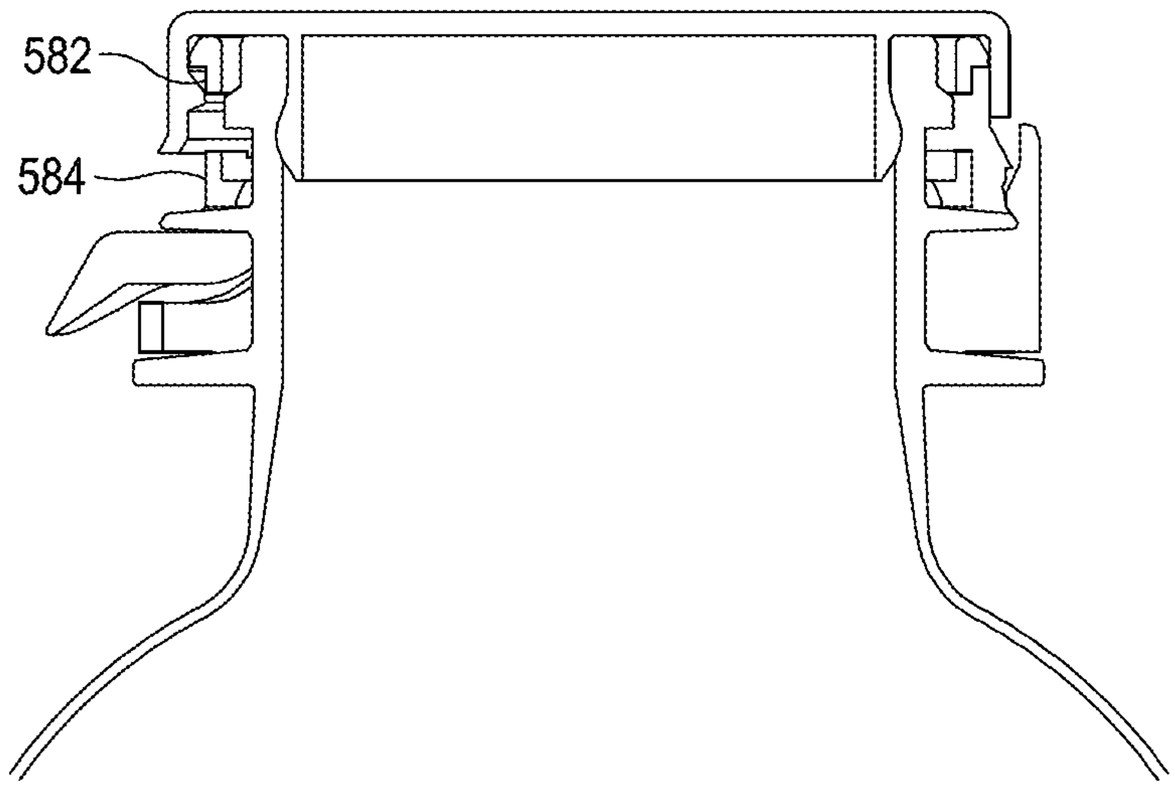

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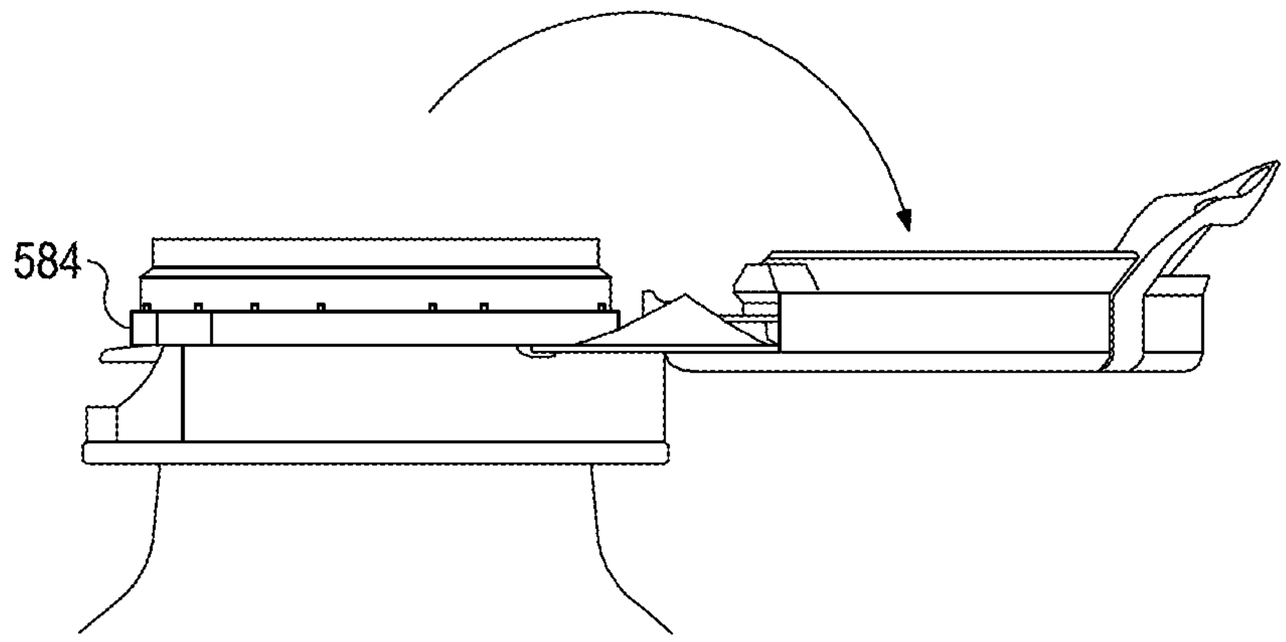

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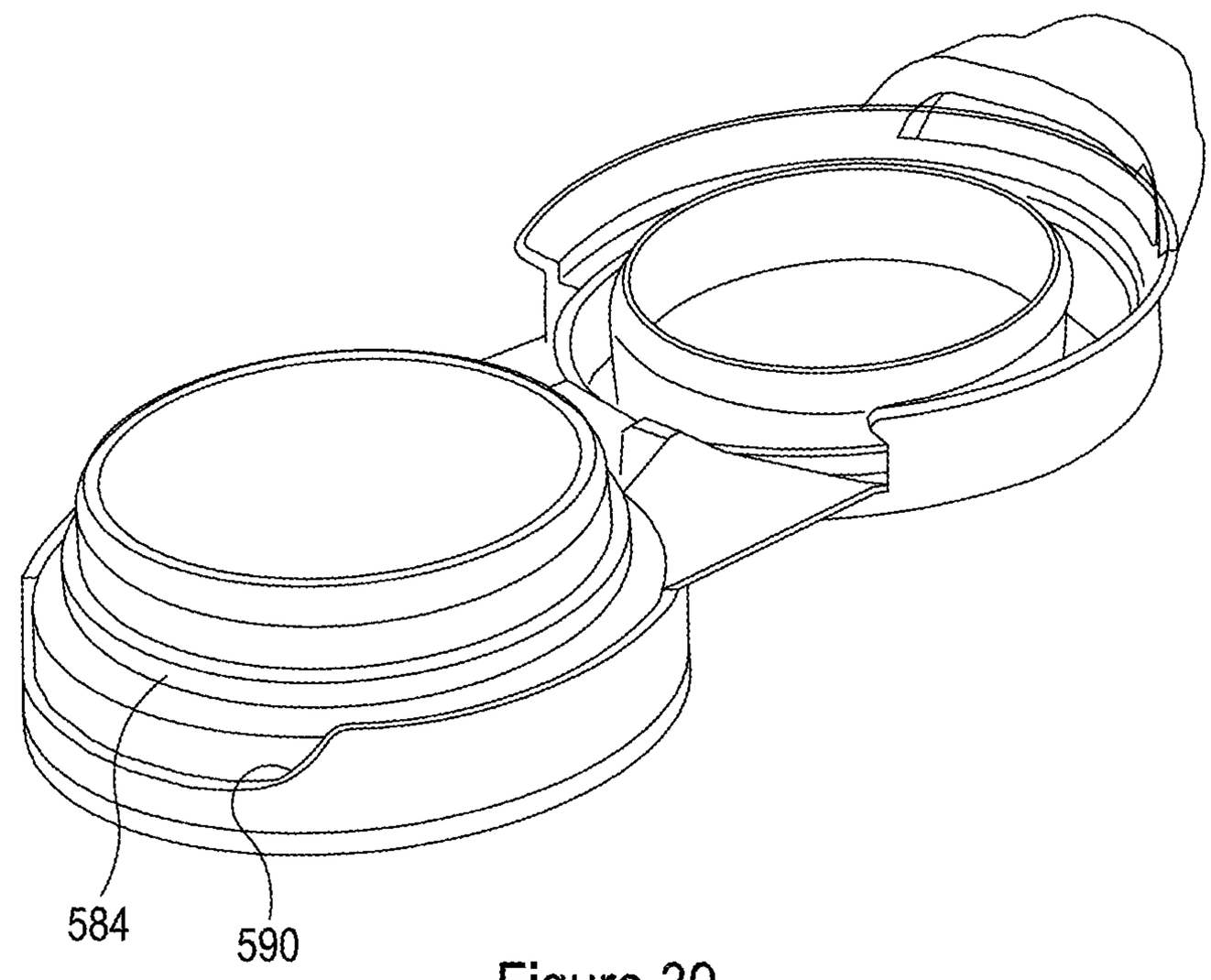

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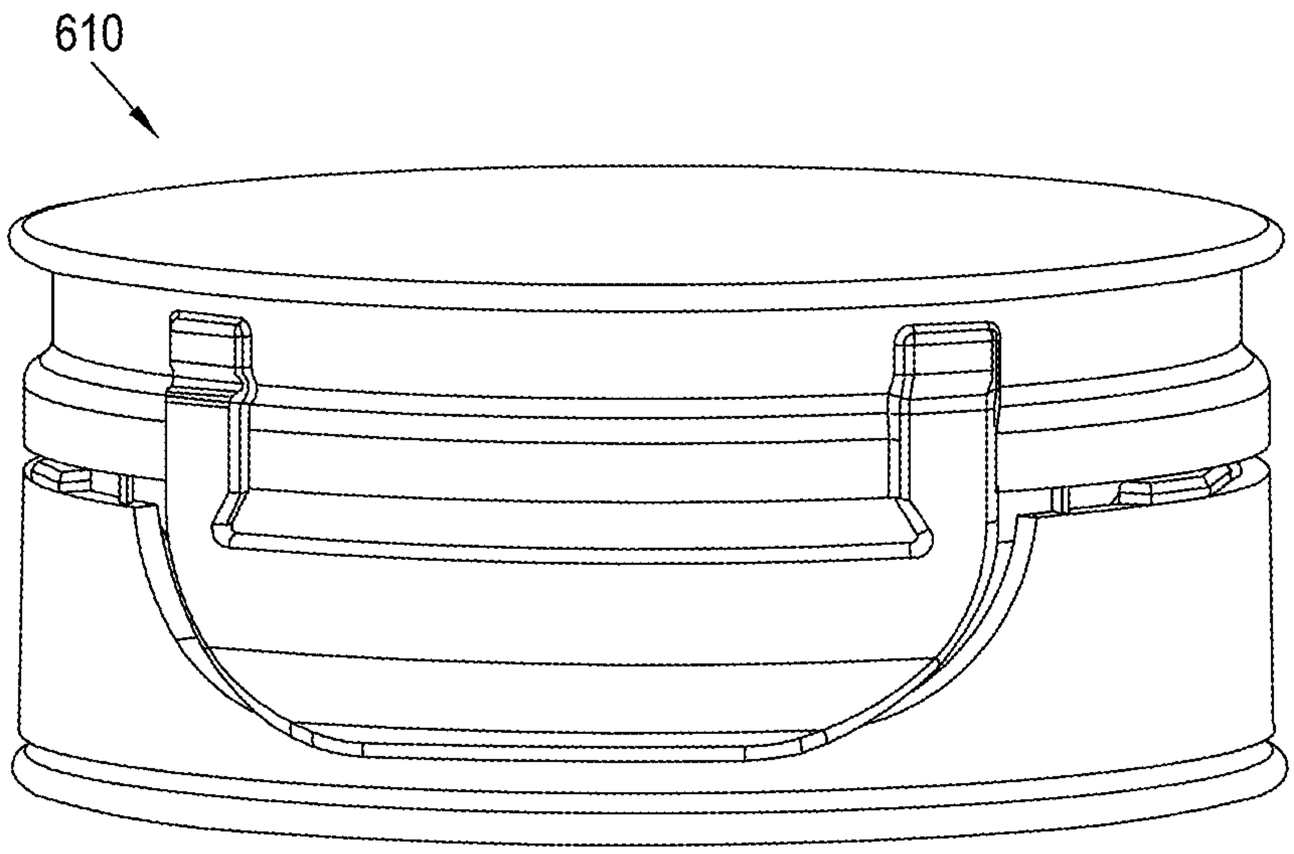

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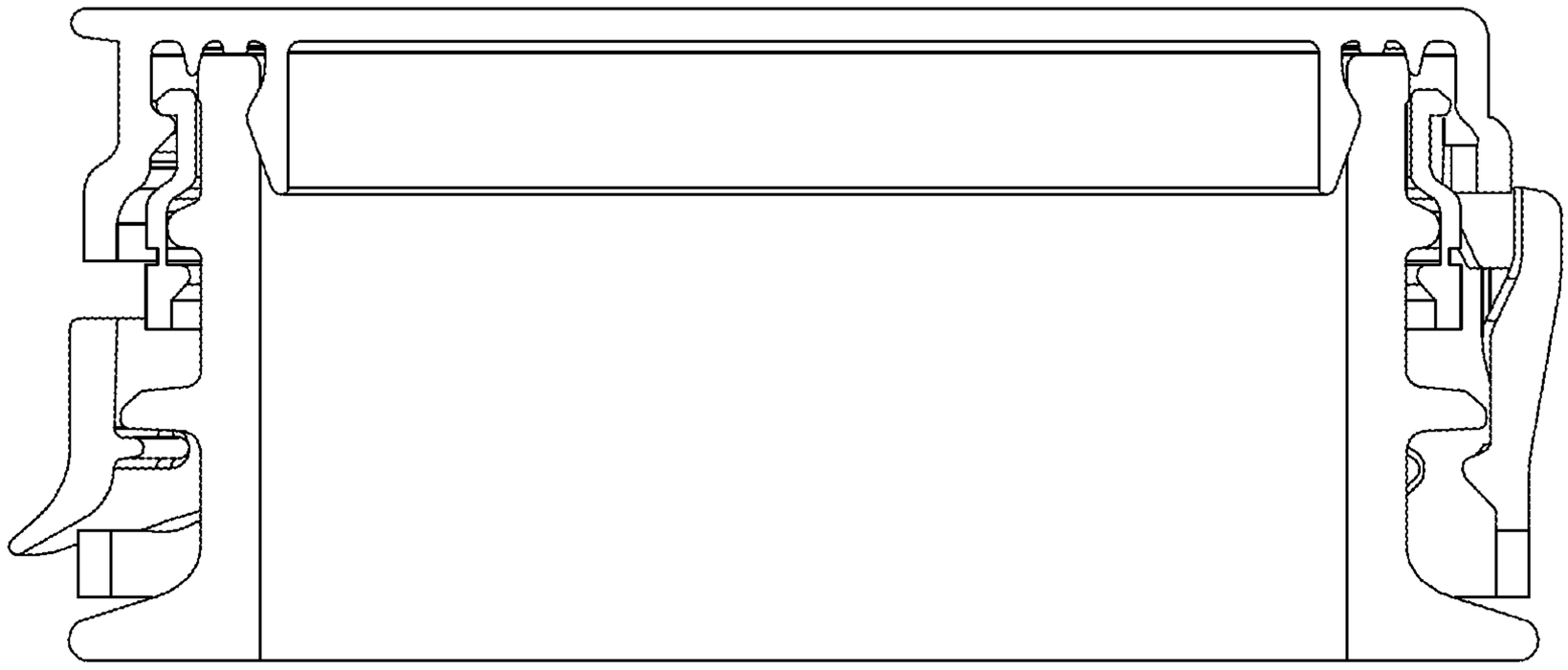

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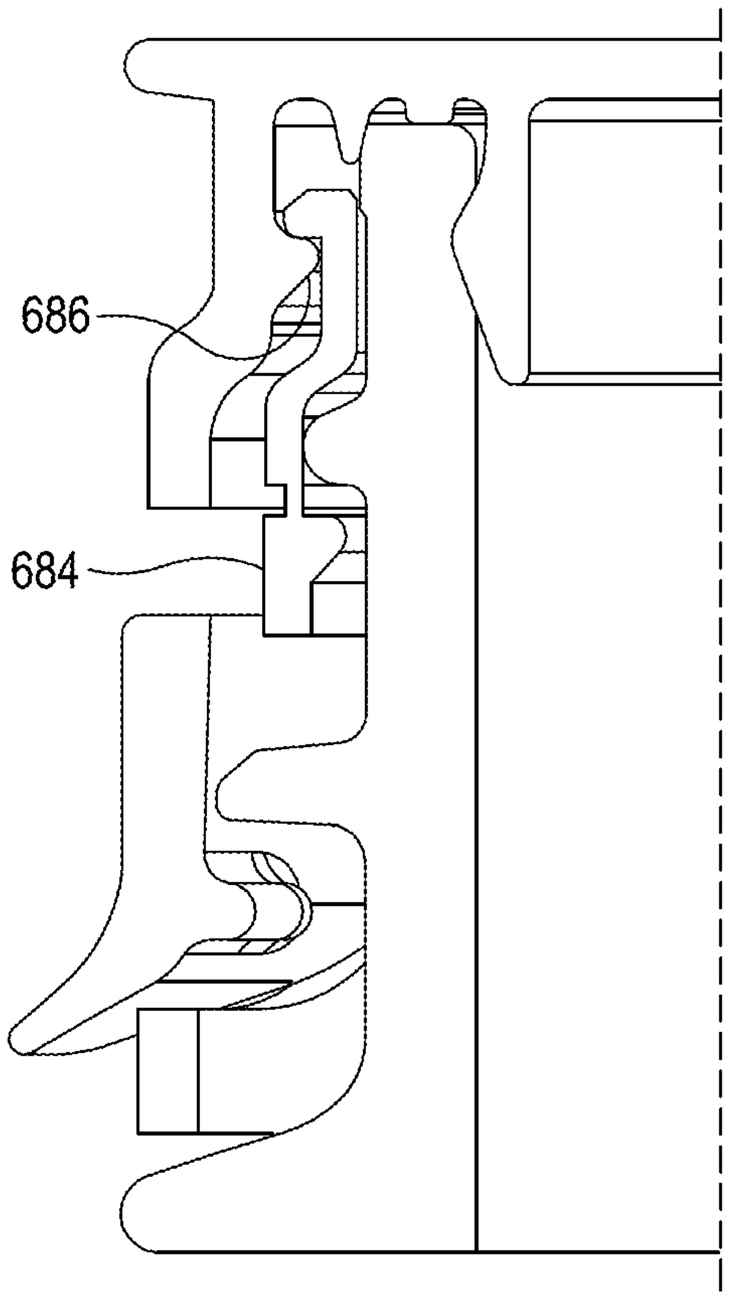

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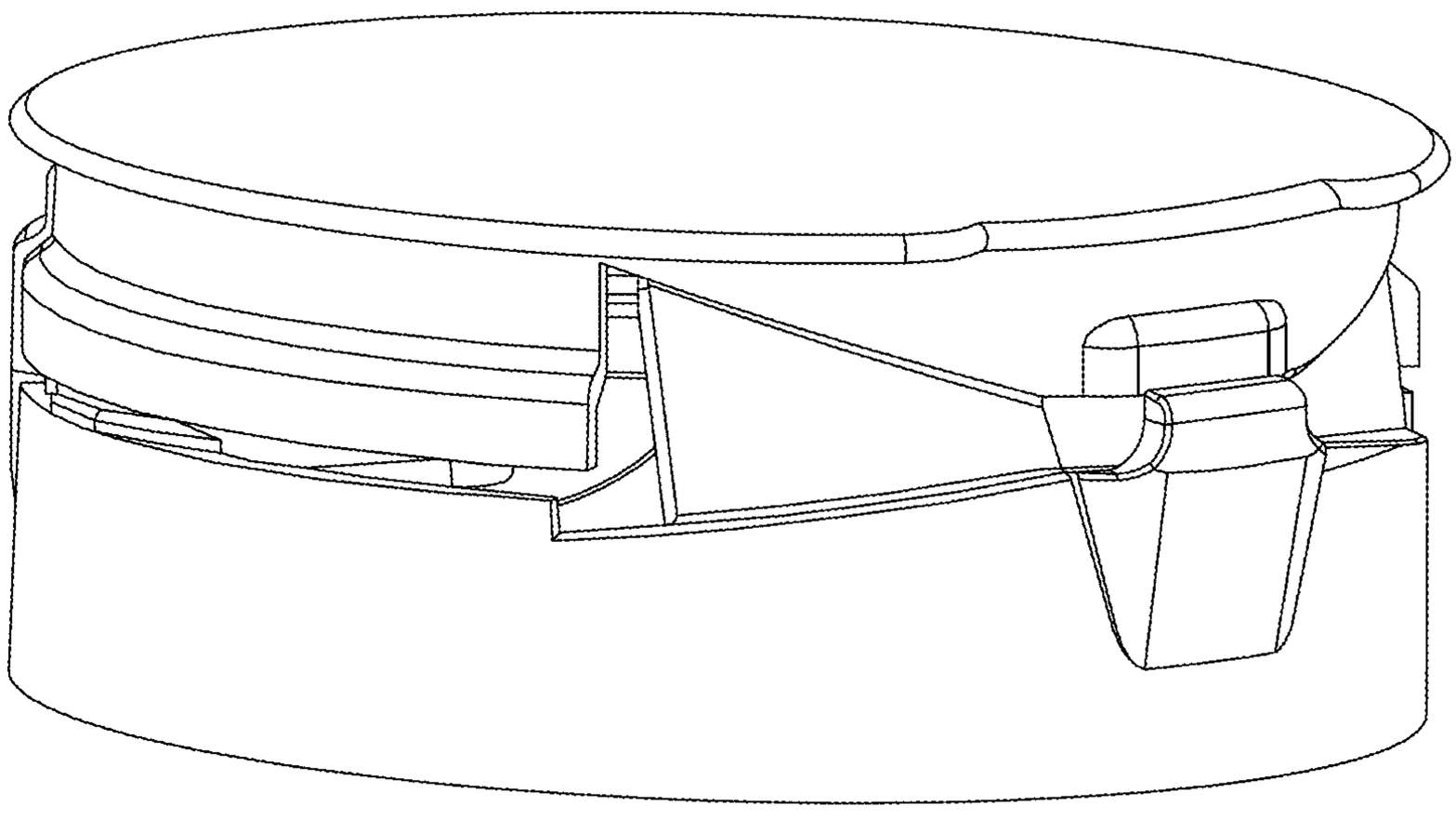

Figure 43

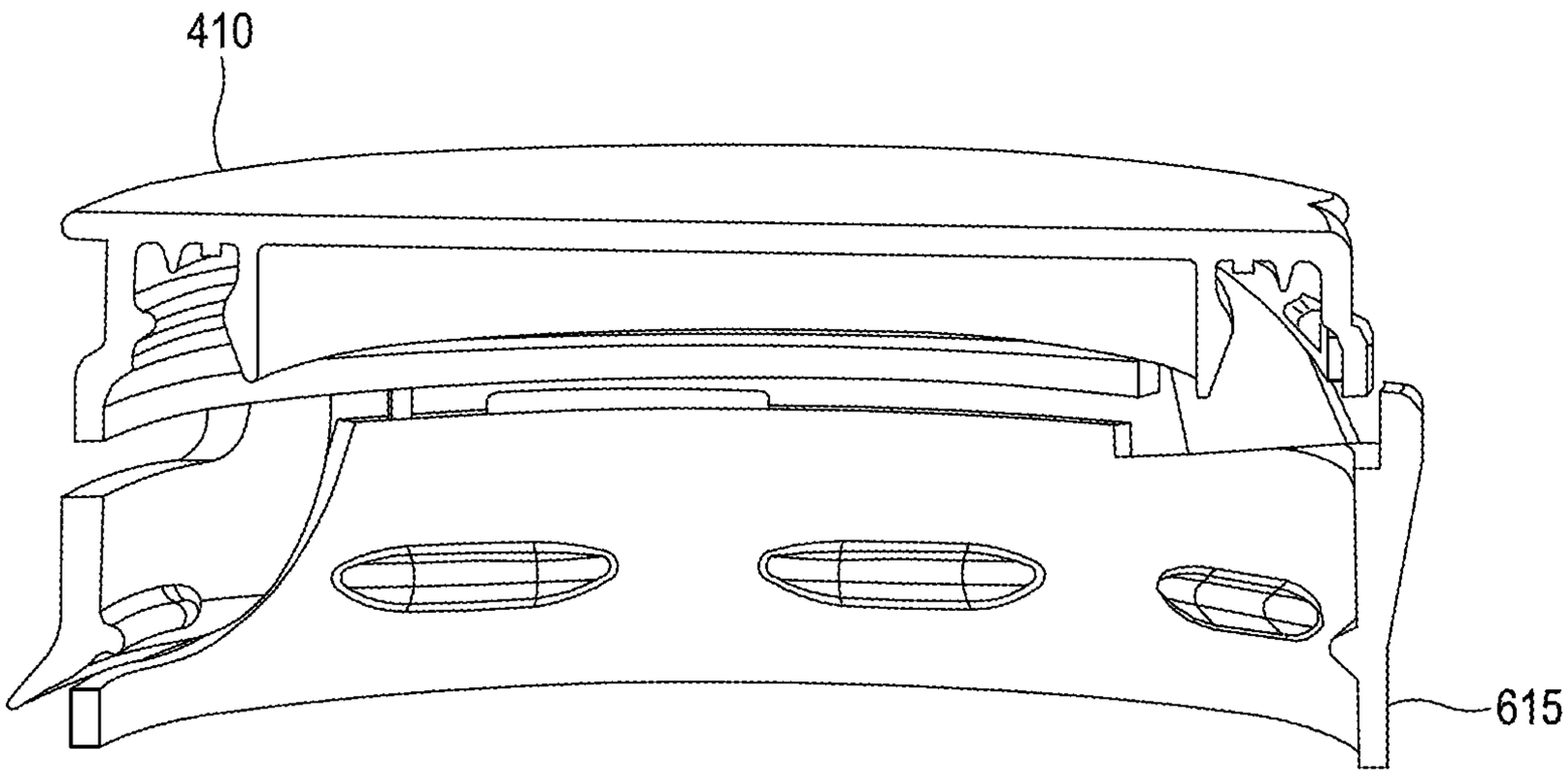

Figure 44

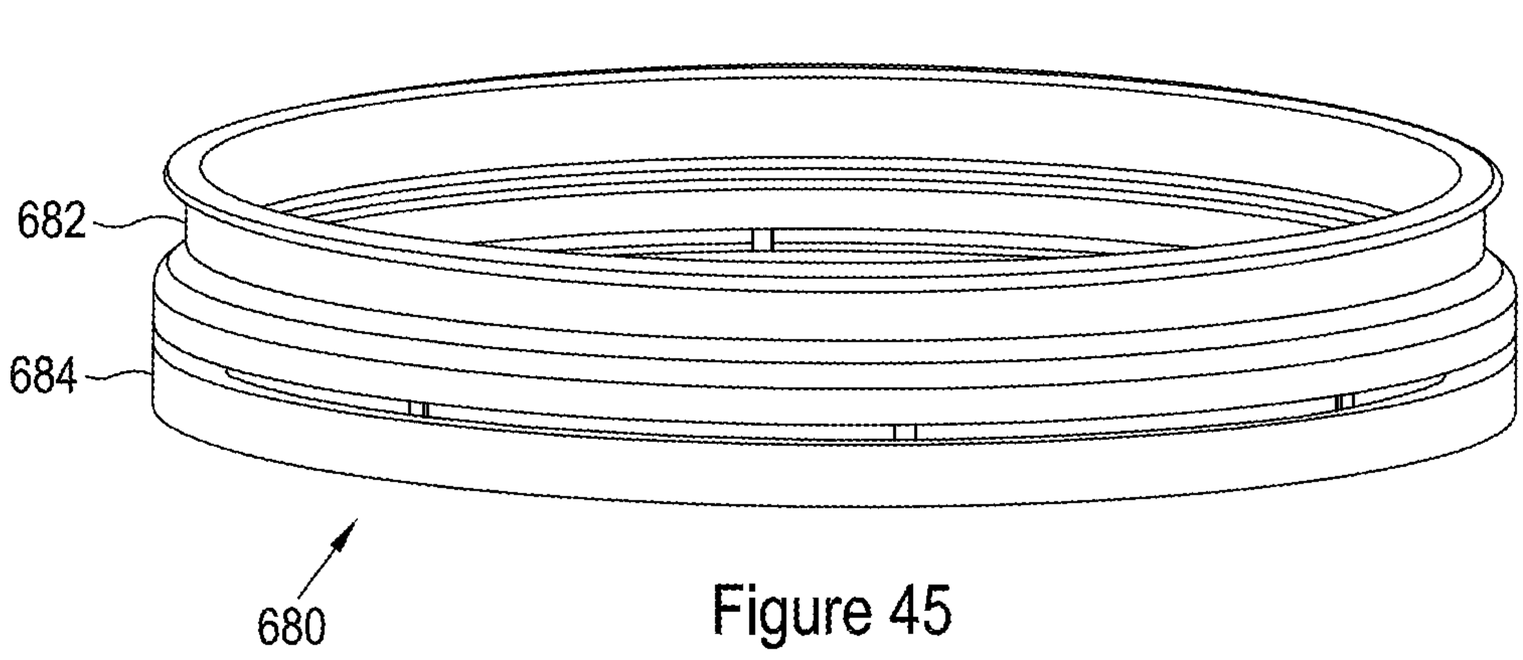

Figure 45

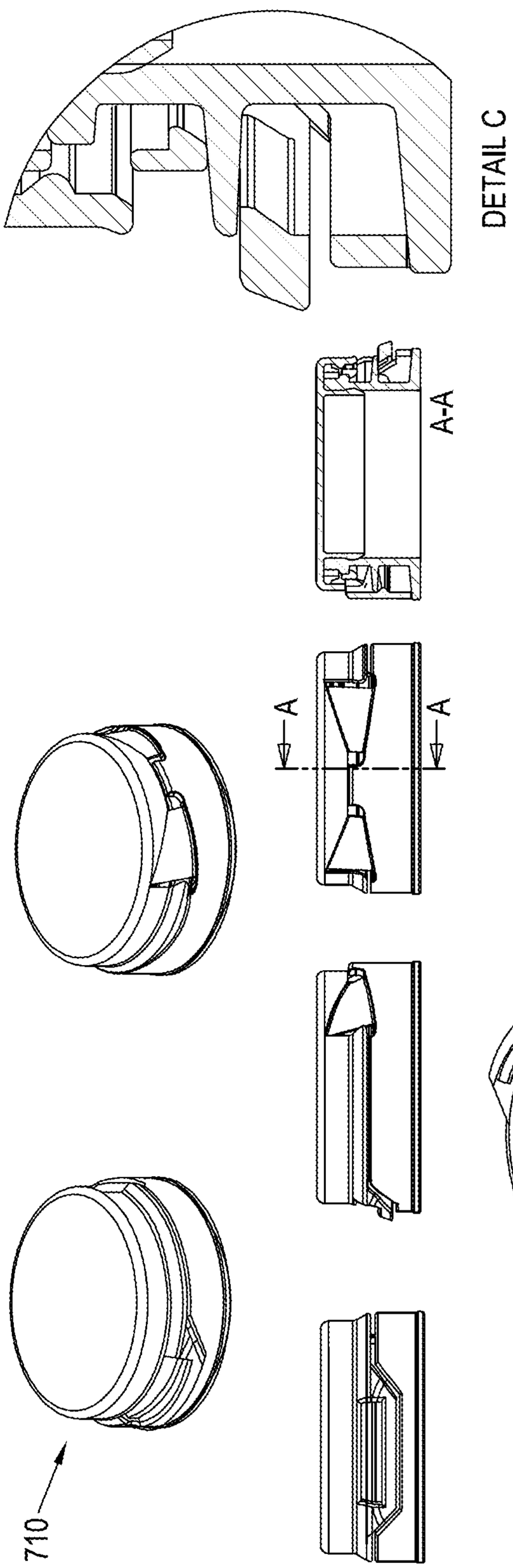

Figure 46

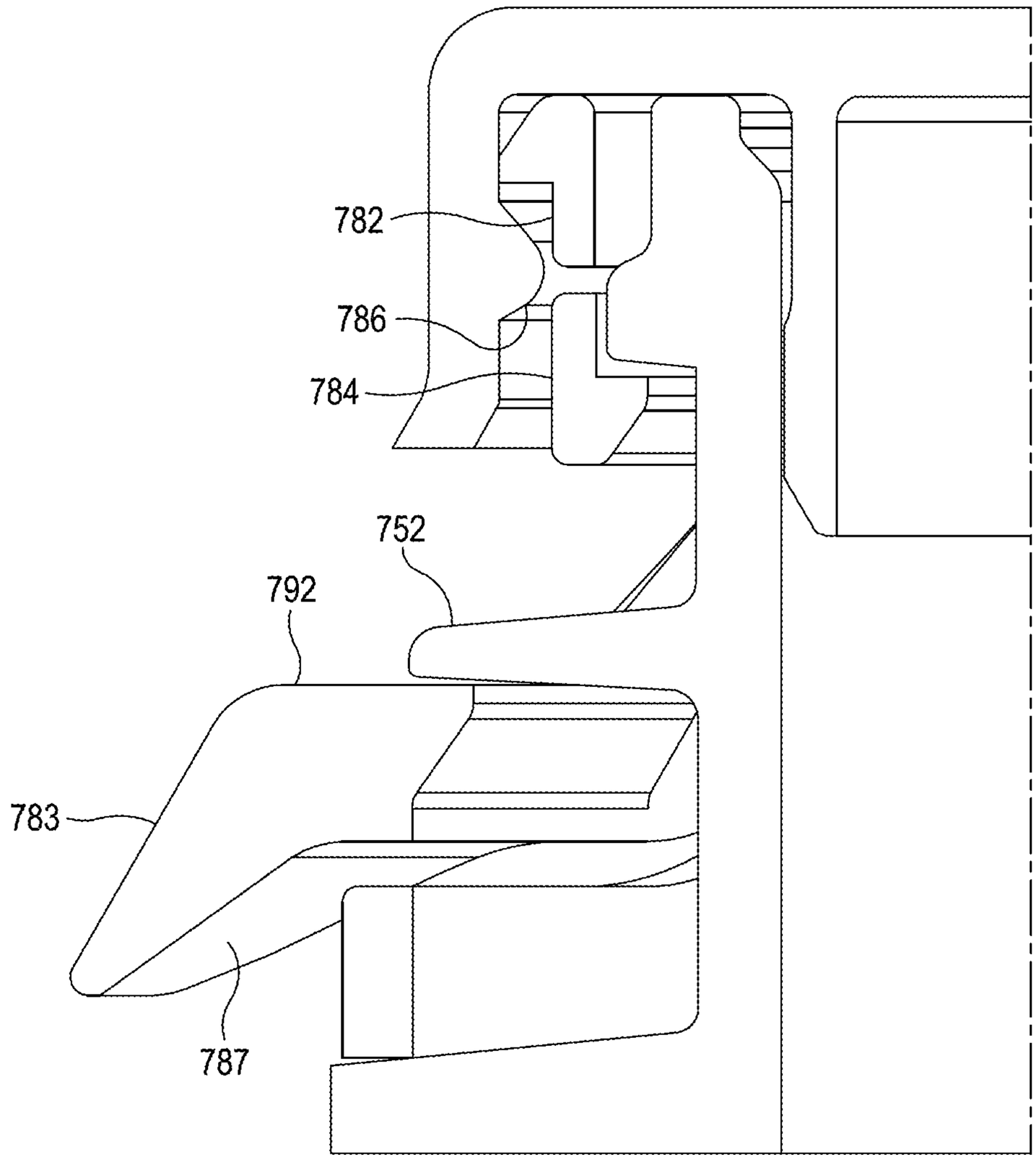

Figure 47

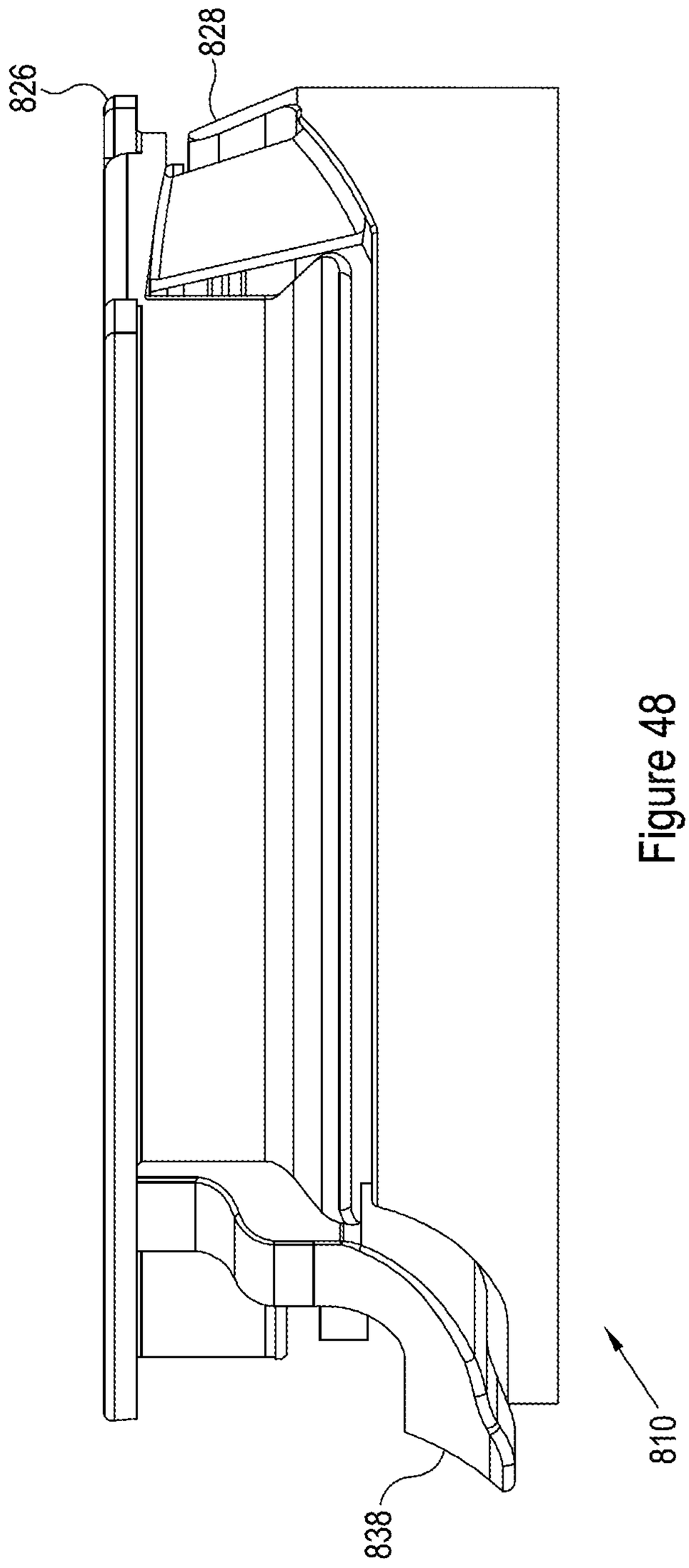

Figure 48

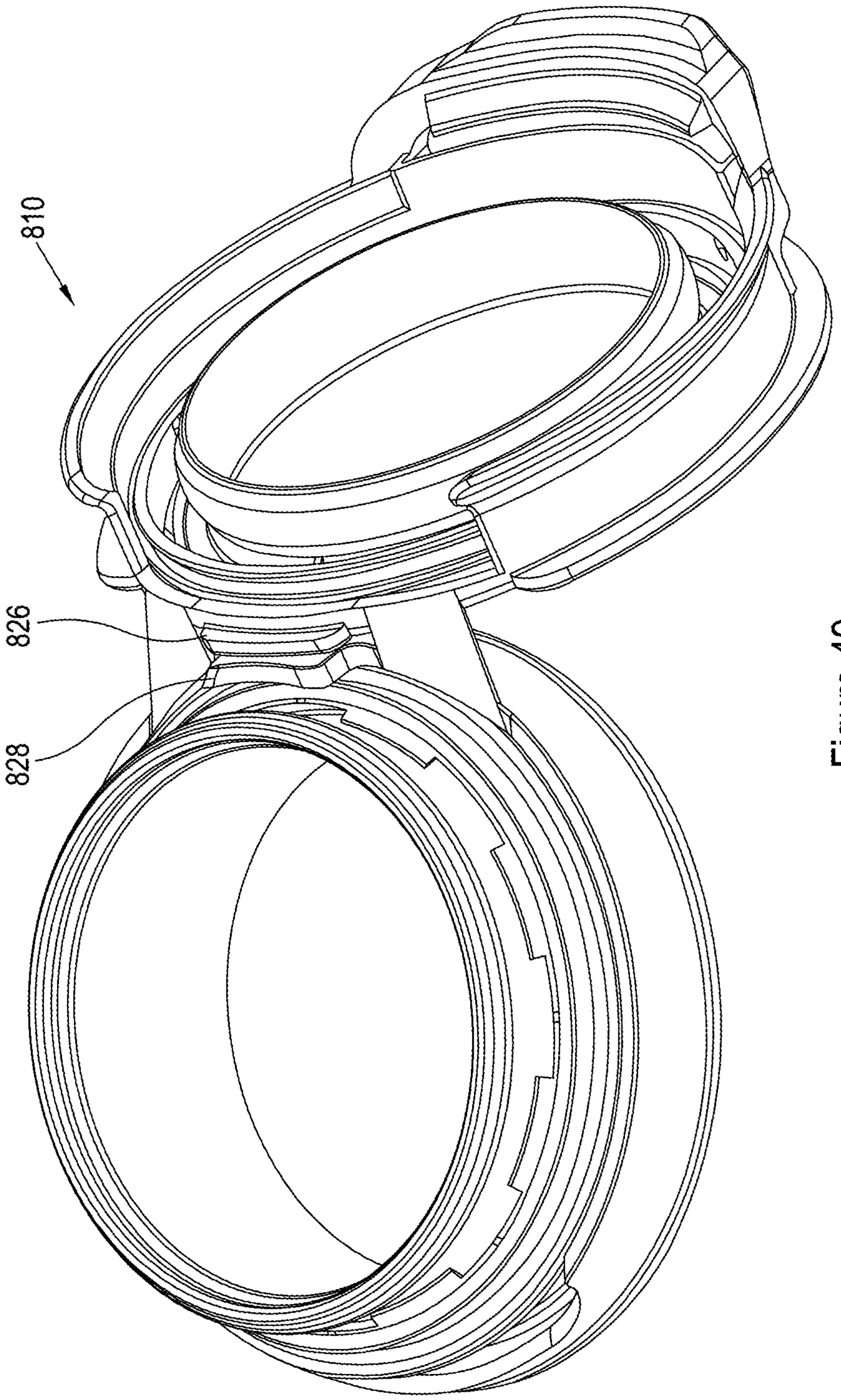

Figure 49

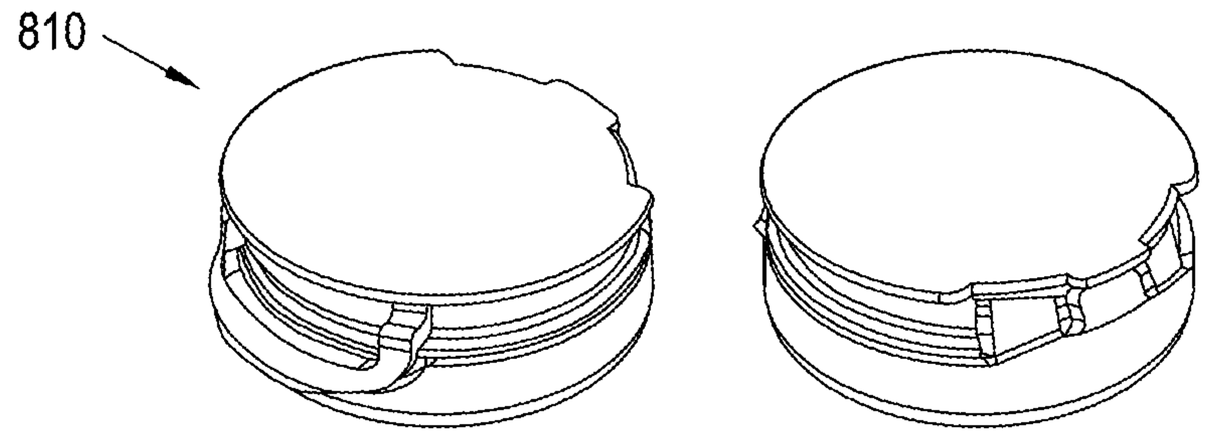

Figure 50

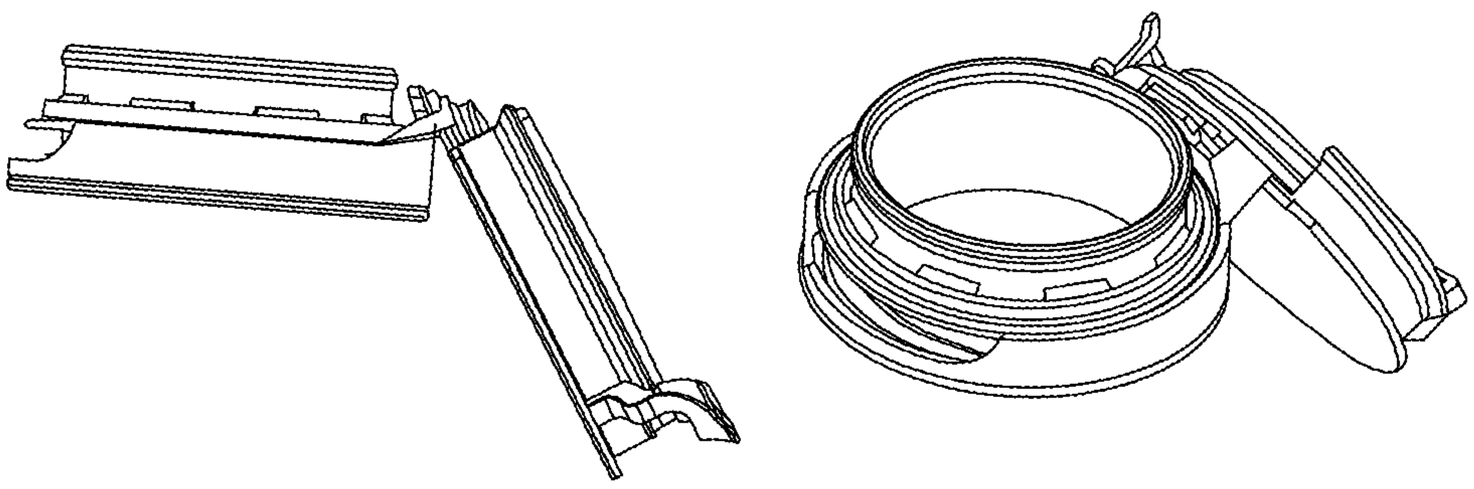

Figure 51

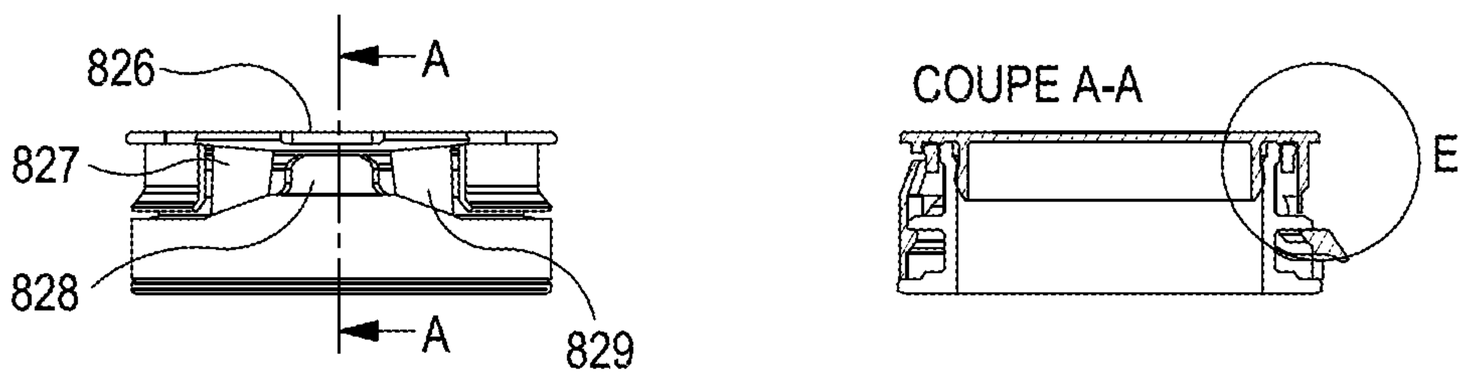

Figure 52

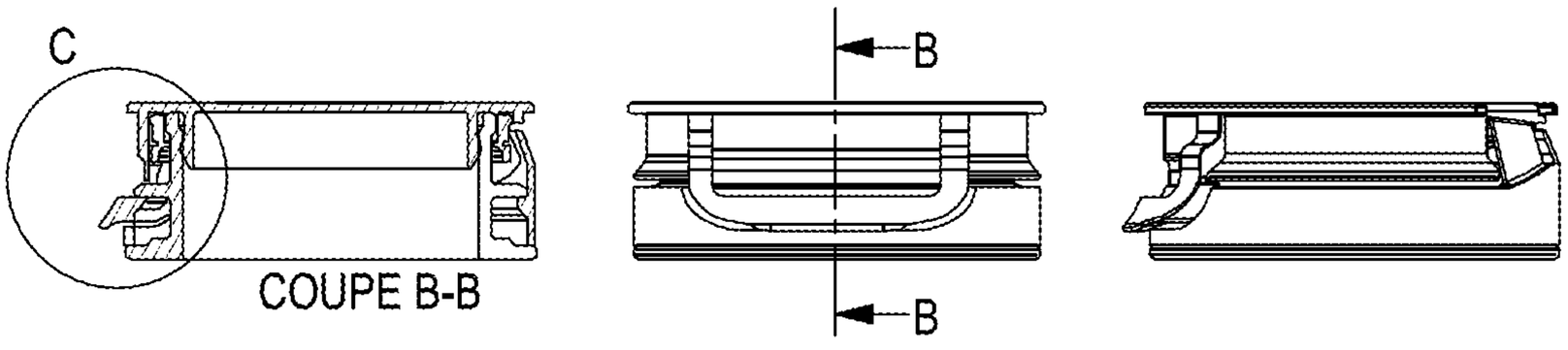

Figure 53

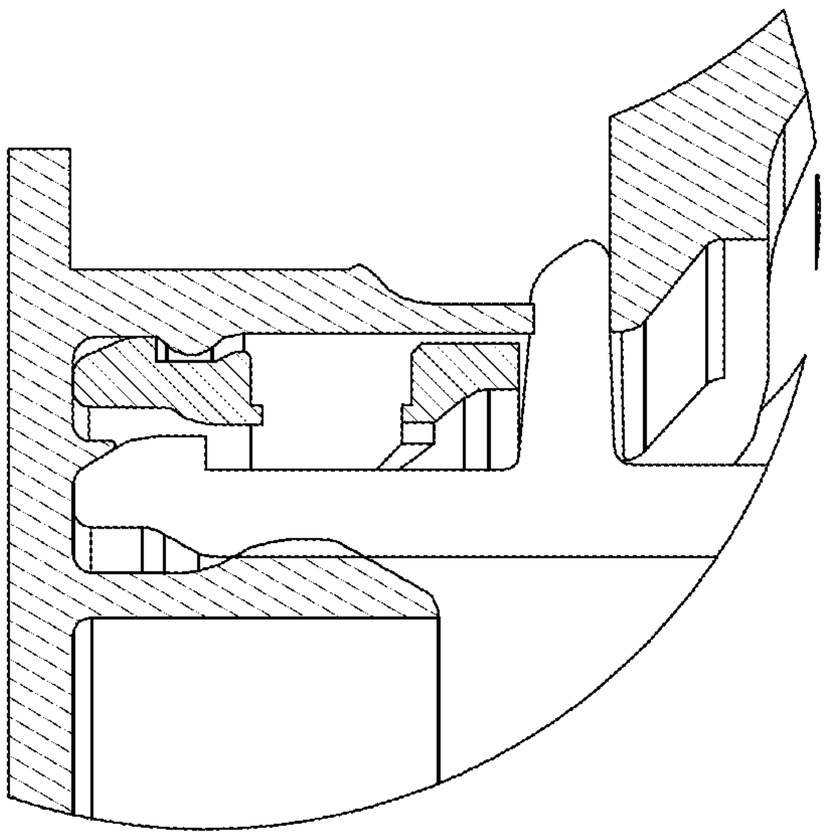

Figure 55

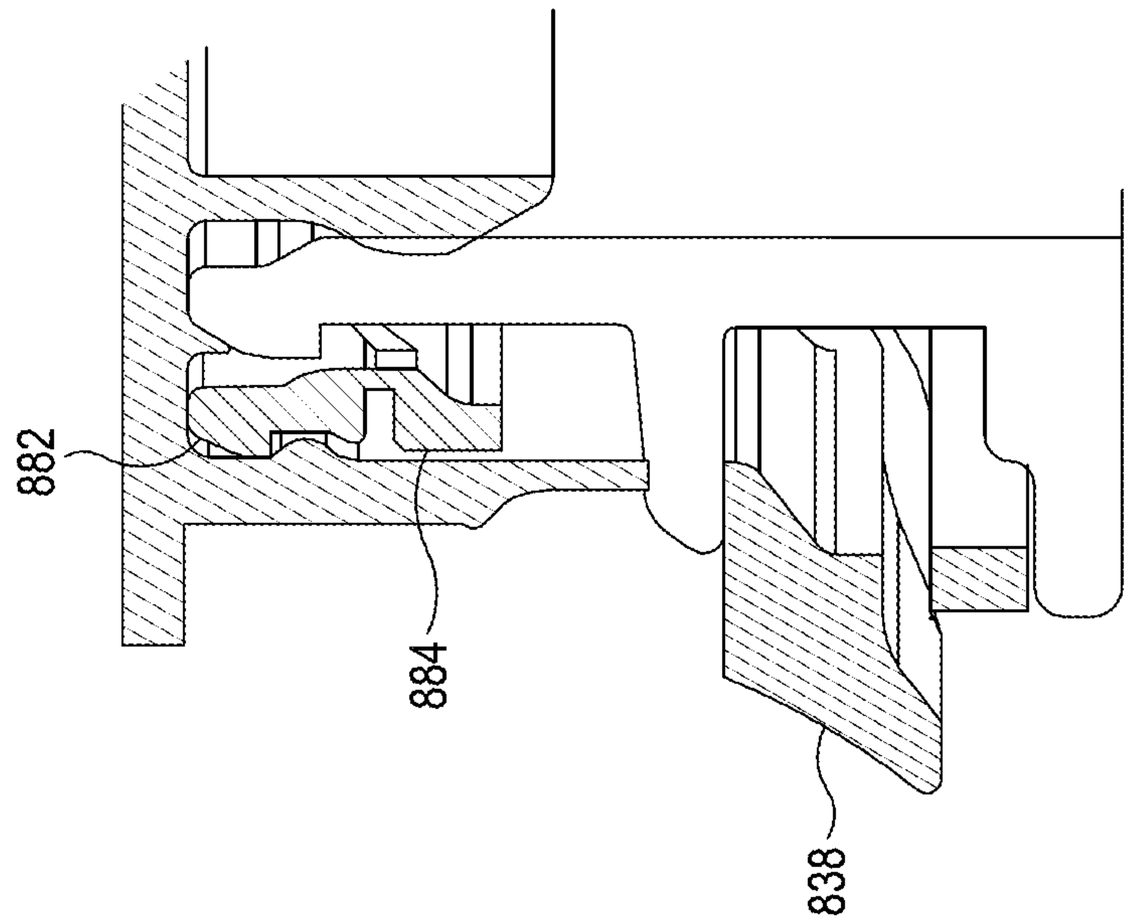

Figure 54

TAMPER EVIDENT CONTAINER CLOSURE

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a U.S. National Stage application under 35 U.S.C. § 371 of International Application PCT/EP2019/067923 (published as WO 2020/007956), filed Jul. 3, 2019, which claims the benefit of priority to U.K. Application No. 1810931.4, filed Jul. 3, 2018, and U.K. Application No. 1821038.5, filed Dec. 21, 2018. Each of these prior applications is hereby incorporated by reference in their entirety.

The present invention relates generally to a closure and particularly, although not exclusively, to a hinge cap.

An aspect of the present invention provides a tamper-evident container closure comprising a base and a lid, the base and lid are connected together by a hinge so that the lid can be moved between a closed position and an open position, the base is attachable to a container neck, generally opposite the hinge the lid includes a retention member, the retention member includes or defines a window and includes a retention portion for engagement with a cooperating portion on the closure and/or on a container neck for holding the lid in a closed position, the closure includes a tamper-evident member at least part of which moves into or out of view with respect to the window to indicate opening of the closure.

In some embodiments a tamper-evident member moves (fall example falls) out of a window or out of register with a window. In other embodiments a tamper-evident member moves (for example falls) into or into registration with a window.

In some embodiments the retention portion engages part of the lid; in other embodiments the retention portion engages part of the base; in other embodiments the retention portion engages a container neck, for example a bead, screw thread formation or the like formed on the neck.

In an initially closed position the tamper-evident member may be visible in and/or through the window and when the lid is moved to the open position the tamper-evident may move at least partly out of view.

The tamper evident member may be attached to the lid in the window in an initially closed position and may move at least partly out of, or out of alignment with, the window when the lid is opened.

When the lid is initially opened the tamper-evident member may irreversibly move to become visible in or through the window. Features such as undercuts, hooks, ledges and the like may be used to retain a member in a position indicating the lid has been opened at least once.

The tamper-evident member may be formed separately from the base and lid.

The tamper-evident member may comprise or consist of one or more rings. For example the tamper-evident member may comprise two rings. The rings may be initially frangibly connected together, and when the lid is opened for the first time the rings may be caused to break apart. In some embodiments one of the rings may be retained by the lid and the other ring may move to become visible in or through the window.

The retention portion may comprise a depending loop. For example the retention member may be a generally hyoid shape.

The retention member may include a retention feature, such as an interior retention chin, for engagement with a cooperating portion on the closure and/or on a container neck. This can be used to help prevent the closure from opening accidentally e.g. in the event it is dropped.

At least part of the window may be formed as an aperture (i.e. no material).

At least part of the window may be formed as a pane (i.e. material through which the tamper-evident member or an absence thereof can be viewed).

At least part of the window may be formed as region of thinned material.

A further aspect provides a container closure comprising a base and a lid, the base and lid are connected together by a hinge so that the lid can be moved between a closed position and an open position, the base is attachable to a container neck, generally opposite the hinge the lid includes a generally hyoidal retention member, the retention member includes a retention chin, ledge or the like for engagement with a container neck.

A further aspect provides a container closure comprising a base and a lid, the base and lid are connected together by a hinge so that the lid can be moved between a closed position and an open position, the base is attachable to a container neck, generally opposite the hinge the lid includes a retention member, the retention member includes a retention portion for engagement with a cooperating portion on the closure and/or on a container neck.

A further aspect provides a tamper-evident closure comprising a base and a lid, the base and lid being joined by a hinge, generally opposite the hinge the lid includes a window, the closure further comprising a tamper-evident member, the tamper-evident member including a lifting projection for lifting the lid, in which when the lid is initially opened the tamper-evident member moves irreversibly so that at least part of the tamper-evident member becomes visible in or through the window.

The lifting projection may extend radially outwards from the lid. The projection is used to, or to help, lift the lid. The action of lifting the lid using the member causes the member to move from a first position to a second position; in doing so part of the member is moved into the window.

In aspects and embodiments of the present invention the lid may comprise a top plate.

The top plate may be generally flat.

The lid may comprise an annular plug seal which depends from the top plate.

The lid may comprise a sidewall that depends from the top plate.

The lid may be movable to a stable open position.

The hinge may be formed to provide the stable open position. The closure may be formed as a stable snap back closure. In some embodiments in the stable open the lid moves approximately 180°, in other embodiments the lid moves approximately 270°.

At least part of the closure may be formed from a non-opaque material.

The closure may be formed, for example moulded, in a closed position.

The closure may be formed, for example moulded, in an open position.

The closure may be formed as a one-piece article.

The closure may be formed as a two-piece article.

The base may be non-removably attachable to a container neck. For example the closure may be snap-on.

Closures may be configured for one-handed opening.

In some embodiments the retention member is formed as a hook.

In some embodiments the underside of the retention member serves as a lifting point.

The present invention also provides a closure as described herein in combination with a container.

Some aspects and embodiments provide a snap back one-piece closure.

Some aspects and embodiments provide a snap back two-piece closure.

In some aspects and embodiments the present invention relates at least partly to the design of a hook in the front of the cap.

The cap may, for example, be suitable for use with a 26 mm bottle neck.

GENERAL OVERVIEW OF ONE EMBODIMENT

This cap may be a hinge cap with snap back hinge feature.

The hinge may be moulded in a closed position.

This cap may also have a drop band function such as a double ring tamper-evident feature (two rings which are frangibly connected together and which break apart axially when the lid is lifted/opened for the first time).

The design is efficient regarding the hooking of the lid cap and allow a better drop test result.

The design is done with a front window which allow an aggressive shape of the hook demoulded by slider into the mould. This window will procure also a good visibility of the drop band.

In an embodiment an upper tamper-evident ring is attached on the lid cap and a lower TE ring is attached on the body instead of the neck. This body design also is moulded in an opened position to have no hole surface outside.

In a further embodiment the body may be moulded in a closed position.

A further aspect provides a container stopper comprising a base part and a lid part, the base and the lid are joined by a hinge, the base includes a snap bead for non-removably engaging a container neck, the lid includes a lifting member for lifting the lid, the lifting member comprises a retention bead for engaging a container neck, the lifting member can be lifted to disengage the retention bead from the container neck so that the lid can be opened.

The lifting member may be a generally hyoidal shape strap which extends radially outwardly and downwardly from the lid generally opposite the hinge.

The retention bead on the lifting member may engage under a rim of the container neck.

The base may comprise a generally annular band with a generally annular snap bead provided on an interior surface thereof.

The lid may comprise a generally flat, disc-shape top plate and a generally annular sidewall which depends from the top plate.

The present invention also provides a container stopper as described herein in combination with a container having a neck.

Different aspects and embodiments of the invention may be used separately or together.

Further particular and preferred aspects of the present invention are set out in the accompanying independent and dependent claims. Features of the dependent claims may be combined with the features of the independent claims as appropriate, and in combinations other than those explicitly set out in the claims.

A BRIEF DESCRIPTION OF THE DRAWINGS:

FIG. **1** is a front view of a one-piece, tamper-evident closure shown in a before opening position;

FIG. **2** shows the closure of FIG. **1** in a reclosed position;

FIG. **3** is a side view of the closure of FIG. **1**;

FIG. **4** shows the closure of FIG. **1** in an as-moulded position;

FIG. **5** shows various external and sectional views of the closure of FIGS. **1** to **4**;

FIG. **6** shows a one-piece, non-detachable snap-on closure in a before opening position;

FIG. **7** shows the closure of FIG. **6** in an opened position;

FIG. **8** shows a side view of the closure of FIG. **6**;

FIG. **9** shows the closure of FIG. **6** in an as-moulded position;

FIG. **10** is a section of the closure of FIG. **11** taken along line A-A;

FIG. **11** is a front view of the closure of FIG. **6**;

FIG. **12** shows various external and sectional views of the closure of FIGS. **6** to **11**;

FIG. **13** shows a one-piece, non-detachable snap-on closure in a before opening position;

FIG. **14** shows a section of the closure of FIG. **13**;

FIG. **15** shows a tamper-evident closure in a before opening position;

FIG. **16** shows the closure of FIG. **15** in a reclosed position;

FIG. **17** is a section of the closure of FIG. **15**;

FIG. **18** is a section of FIG. **16** and illustrating opening of the closure;

FIG. **19** shows the closure of FIGS. **15** to **18** in an opened position;

FIG. **20** shows a closure in a before opening position;

FIG. **21** shows a section of the closure of FIG. **20**;

FIG. **22** shows the closure of FIG. **15** in a reclosed position;

FIG. **23** shows a front view of the closure of FIG. **15**;

FIG. **24** is a section of the closure of FIG. **15** illustrating a direction of movement of a lifting member;

FIG. **25** shows the lifting member of FIG. **24** being lifted over a container bead;

FIG. **26** shows the lifting member of FIG. **25** after lifting over the container bead;

FIG. **27** shows the closure of FIG. **26** during reclosure;

FIG. **28** shows the closure of FIG. **27** in a reclosed position;

FIG. **29** shows the closure of FIG. **29** in a fully opened position;

FIG. **30** shows a front perspective view of the closure of FIG. **29**;

FIG. **31** is an exploded view of a tamper-evident closure;

FIGS. **32**, **34** and **36** show the closure of FIG. **31** assembled and unopened;

FIGS. **33**, **35** and **37** show the closure following reclosing of the closure of FIGS. **32**, **34** and **36**;

FIGS. **38** and **39** show the closure of FIGS. **32** to **27** in an open position;

FIG. **40** shows a tamper-evident closure in a before opening position;

FIG. **41** is a section of the closure of FIG. **40**;

FIG. **42** is magnified view of the section of FIG. **41**;

FIG. **43** is a rear perspective view of the closure of FIG. **40**;

FIG. **44** is a partial section of a body component forming part of the closure of FIG. **40**;

FIG. **45** is a perspective view of a tamper-evident member component forming part of the closure of FIG. **40**;

FIG. **46** shows various external and sectional views of a tamper-evident closure;

FIG. **47** shows a magnified section of the closure of FIG. **46**;

FIG. **48** shows a side view of a tamper-evident closure in a before opening position;

FIG. **49** shows the closure of FIG. **48** in an open position;

FIG. **50** shows front and rear perspective views of the closure of FIG. **48**;

FIG. **51** shows side and front perspective views of the closure of FIG. **49**;

FIG. **52** shows a rear perspective view of the closure of FIG. **48** and a section along line A-A with the closure in a reclosed position;

FIG. **53** shows a front and side view of the closure of FIG. **48** and a section along line B-B;

FIG. **54** is a magnified view of Detail C of FIG. **53**; and

FIG. **55** is a magnified view of Detail E of FIG. **52**.

The present invention will now be more particularly described, by way of example, with reference to the accompanying drawings.

The example embodiments are described in sufficient detail to enable those of ordinary skill in the art to embody and implement the systems and processes herein described. It is important to understand that embodiments can be provided in many alternate forms and should not be construed as limited to the examples set forth herein.

Accordingly, while embodiment can be modified in various ways and take on various alternative forms, specific embodiments thereof are shown in the drawings and described in detail below as examples. There is no intent to limit to the particular forms disclosed. On the contrary, all modifications, equivalents, and alternatives falling within the scope of the appended claims should be included. Elements of the example embodiments are consistently denoted by the same reference numerals throughout the drawings and detailed description where appropriate.

Unless otherwise defined, all terms (including technical and scientific terms) used herein are to be interpreted as is customary in the art. It will be further understood that terms in common usage should also be interpreted as is customary in the relevant art and not in an idealized or overly formal sense unless expressly so defined herein.

In the following description, all orientational terms, such as upper, lower, radially and axially, are used in relation to the drawings and should not be interpreted as limiting on the invention.

Referring first to FIGS. **1** to **5** there is shown a one-piece, tamper-evident closure generally indicated **10**.

The closure **10** comprises a generally annular base **15** and a disc-like lid **20**.

The base **15** is non-detachably attachable to a container neck **50**. The interior of the base **15** includes a generally annular retention (snap) bead **17** which engages under a corresponding bead **52** on the neck finish.

The base **15** and lid **20** are connected by a hinge arrangement **25**. The hinge **25** comprises a pair of generally trapezoidal/truncated triangular flanking links **27**, **29**. Between the links **27**, **29** is a central link **30** which comprises a pair of projections **32**, **34**. When the lid is opened the projections **32**, **34** wedge/abut against each other to hold the lid in a stable open position.

The lid **20** includes a generally disc-shape top plate **21** and a sidewall **22** which depends from the top plate, slightly inboard of its periphery (so that it resembles an upturned top hat). An annular plug **23** depends from the underside of the top plate **21** and in use seals in the bore of the container neck.

The sidewall **22** extends from the hinge links **27**, **29** around towards the "front" of the lid, opposite the hinge **25**. Between the two ends of the sidewall a lifting strap **35** is provided.

The strap **35** is a generally hyoid shape, with two axial strap portions **36**, **37** and a central bight **38**. The strap **35** has a central gap/aperture/window **39**.

In the unopened condition (see FIG. **1**, for example) a tamper-evident tab **40** is frangibly connected to the lid sidewall within the window **39** by frangible bridges **42**.

The base **15** is provided with a retaining ledge **18**. The ledge **18** is positioned so that the "top" of the bight **38** engages thereunder when the lid is closed.

The tamper-evident tab **40** includes a hook **41** which engages under a corresponding hook **19** on the ledge **18**.

In use, when the lid is opened for the first time the lifting strap **35** is lifted (using the bight **38**, the centre of which is formed like a jutting chin). The tab **40** cannot move upwards because of the hooks **41**, **19**, so this causes the bridges **42** to break. The tab **40** falls down and therefore fall out of the window (see FIG. **2**, for example). This provides visual evidence that the lid has been opened at least once.

FIGS. **6** to **12** show a closure **110** formed according to a further aspect of the present invention. The closure **110** is formed as a one-piece, non-detachable snap-on closure.

The closure **110** comprises a generally annular base **115** and a disc-like lid **120**.

The base **115** is non-detachably attachable to a container neck **150**. The interior of the base **115** includes a generally annular retention (snap) bead **117** which engages under a corresponding bead **152** on the neck finish.

The base **115** and lid **120** are connected by a hinge arrangement **125**. The hinge **125** comprises a pair of generally trapezoidal/truncated triangular flanking links **127**, **129** which connect to the base and the lid.

Between the links **127**, **129** the top plate **121** of the lid is provided with a tab extension **126** and the base is provided with a corresponding upstanding tab extension **128**. When the lid is opened the extensions **126**, **128** wedge/abut against each other to hold the lid in a stable open position (see FIGS. **7** and **9**, for example).

The lid **120** includes a generally disc-shape top plate **121** and a sidewall **122** which depends from the top plate, slightly inboard of its periphery (so that it resembles an upturned top hat). An annular plug **123** depends from the underside of the top plate **121** and in use seals in the bore of the container neck.

Opposite the hinge **125** a lifting strap **135** is provided. The strap **135** is a generally hyoid shape, with two axial strap portions **136**, **137** and a central bight **138**.

The interior of the bight **138** is provided with a bead **155** which engages under the container neck rim **154**. This engagement provides a strong retention force, preventing the lid from being accidentally lifted.

FIGS. **13** and **14** show a closure **210** formed according to a further embodiment. The closure **210** is similar to the closure **110**.

In this embodiment the base **215** includes a frontal cut-out **216** in which a strap bight **238** sits. This means that a bight retaining projection **255** can engage under a neck bead **253** (rather than under the rim) to hold the lid closed. In this embodiment, at the split line between the base and the lid they are joined by a plurality of frangible bridges **260**.

The bight **238** is joined to the straps **236**, **237** by thinned lines **265**, **267** and the bight is joined to the lid sidewall **222**

by a thinned line **269**. This means that the bight **238** can be hinged outwards to allow the projection **255** to pass over the bead **253**.

FIGS. **15** to **19** show a tamper-evident closure **310** formed according to a further aspect of the present invention.

The closure **310** comprises a base **315** and a lid **320**. The base and lid are connected by a hinge **325**.

The base **315** is generally annular and is non-detachably attachable to a container neck **350**. The interior of the base **315** includes a generally annular retention (snap) bead **317** which engages under a corresponding bead **352** on the neck finish.

The lid **320** comprises a disc-shape top plate **321** and a sidewall **322** that depends from the periphery thereof.

At the "front" of the lid **320**, generally opposite the hinge **325**, the sidewall **322** includes a cut-out **324** that extends from the free end of the sidewall. Axially above (i.e. closer to the top plate **321**) the sidewall includes a window **340**. The cut-out **324** and window **340** are separated by a bar **343**.

A tamper-evident lifting member **370** is provided. The member **370** comprises a lower peak **372** and an upper hook **374** joined together by an intermediate portion **376**. In the unopened condition the peak **372** is frangibly connected to the base by frangible bridges **378**. The lid sidewall includes a recessed portion **380** which has a hook **382**. In this embodiment the portion **380** sits on top of the neck rim **384**. In the unopened condition the upper hook **374** sits above the bar **343** and below the hook **382** and is visible in the window **340**.

In use, the lid is opened by lifting the member **370** using the peak **372**. This causes the bridges **378** to break and the member moves axially towards the top plate **321**. The member hook **374** moves over and engages above the sidewall hook **382**, which prevents it from moving back down. Continued lifting of the member **370** now lifts the lid. The position of the member **370** with respect to the cut-out **324** and the window **340** provides visual evidence of opening of the lid.

FIGS. **20** to **30** show a closure **410** formed in accordance with a further aspect of the present invention.

The closure **410** comprises a generally annular base **415** and a disc-like lid **420**.

The base **415** is non-detachably attachable to a container neck **450**. The interior of part of the base **415** includes a generally annular retention (snap) bead **417** which engages under a corresponding bead **452** on the neck finish.

The lid **420** includes a generally disc-shape top plate **421** and a sidewall **422** which depends from the top plate, slightly inboard of its periphery (so that it resembles an upturned top hat). An annular plug **423** depends from the underside of the top plate **421** and in use seals in the bore of the container neck.

The base **415** and lid **420** are connected by a hinge arrangement **425**. The hinge **425** comprises a pair of generally trapezoidal/truncated triangular flanking links **427**, **429** which connect to the base and the lid.

Between the links **427**, **429** the top plate **421** of the lid is provided with a tab extension **426** and the base is provided with a corresponding upstanding tab extension **428**. When the lid is opened the extensions **426**, **428** wedge/abut against each other to hold the lid in a stable open position (see FIGS. **29** and **30**, for example).

The sidewall **422** extends from the hinge links **427**, **429** around to the "front" of the lid, opposite the hinge **425**. A lifting strap **435** is provided. The strap **435** is a generally hyoid shape, with two axial strap portions **436**, **437** and a central bight **438**. The strap **435** defines a gap/aperture/window **439**. The upper surface of the bight **438** is flat and engages under the neck bead **453**. The base includes a frontal cut-out **490** that is shaped to correspond with the bight **438**.

A tamper-evident member **480** is provided. The member **480** comprises a double ring structure, with an upper **482** and lower **484** ring which are frangibly connected together. The upper ring **482** has a hook **483** which extends radially outwards. The lower ring **484** has a hook **485** which extends radially inwards. The lid sidewall includes a retention bead **486**. The upper ring hook **483** engages over the bead **486** to retain the ring **482**. The lower ring hook **485** engages under the neck rim **454**.

The closure is shown unopened in FIGS. **20**, **21**, **23** and **24**. The lid cannot be lifted because of the engagement of the flat upper face **492** of the bight under the bead **452**. In order to open the lid the strap **435** must be bent/pivoted from under the bead, as illustrated in FIG. **25**. This causes the rings **482**, **484** to be broken apart (FIG. **26**). The lid can be pivoted over, in this embodiment by 270 degrees (FIGS. **29** and **30**). The tabs **426**, **428** engages to provide a stable open position.

When the lid is reclosed the inclined face **487** of the bight **483** allows it to pass over the bead **452** (FIG. **27**). The upper ring is retained in the lid. The lower ring has dropped down onto the neck bead **452** and is visible through the window **439** (FIGS. **22**, **27** and **28**) to serve as visual evidence that the lid has been opened.

FIGS. **31** to **39** show a closure **510** formed according to a further embodiment. The closure **510** is similar to the closure **410**. In this embodiment the lower ring hook **585** extends radially inwards with a flat upper surface (as opposed to extending radially inwards and upwards towards the top plate as with the hook **485**).

FIGS. **32**, **34** and **36** show the closure unopened. FIGS. **33**, **35** and **37** show the closure following opening. The lower ring **584** has dropped down and is visible through the window **539**.

In this embodiment the hinge arrangement provides a stable open position at approximately 180 degrees (FIGS. **38** and **39**).

FIGS. **40** to **45** show a closure **610** formed according to a further embodiment. The closure **610** is similar to the closures **410**, **510**. In this embodiment the lower ring hook **685** extends radially inwards with a flat upper surface. The upper ring is formed with a chicane-like section.

In this embodiment, in the unopened condition the lower ring is visible. Upon first opening the lower ring drops onto the neck bead and is no longer visible, whereby to indicate opening. FIGS. **46** and **47** show a closure **710** formed according to a further embodiment. The closure **710** is similar to the closures **410**, **510**, **610**, with a double ring tamper-evident member. The upper ring **784** drops to become visible upon first opening.

FIGS. **48** to **55** show a closure **810** formed according to a further embodiment. The closure **810** is similar to the closures **410**, **510**, **610**.

In some aspects and embodiments a standard neck finish is used. In other embodiments a bespoke neck finish is used.

Features of aspects and embodiments of the present invention may include:

snap-on
two-piece solution
colour change for good visibility
tamper-evident feature is retained
stable open position
useable on a 26 mm bottle neck
one hand opening
organoleptic raw materials

no sharp edges
good drop test results
click at the opening
ergonomic thumb recess
during lid cap opening, bridges of an inner ring are broken and one part falls inside the cap
tamper-evident band part with change colour effect to have a better view of the first opening
thumb up recess with a hook feature
easy to open
unlock at the opening
improved drop test results
snapback hinge technology
180 degrees stable opening
high density polyethylene

Although illustrative embodiments of the invention have been disclosed in detail herein, with reference to the accompanying drawings, it is understood that the invention is not limited to the precise embodiments shown and that various changes and modifications can be effected therein by one skilled in the art without departing from the scope of the invention.

The invention claimed is:

1. A container closure comprising a base part and a lid part, the base part and the lid part are joined by a hinge, the base part includes a snap bead for non-removably engaging a container neck, the lid part includes a lifting member for lifting the lid part, the lifting member comprises a retention portion for engagement with a cooperating portion on the container neck, the lifting member can be lifted to disengage the retention portion so that the lid part can be opened, in which the closure comprises a tamper-evident member and the tamper-evident member is formed separately from the base part and the lid part and in which the tamper-evident member comprises two rings, the rings are initially frangibly connected together, when the lid part is opened for the first time the rings are caused to break apart.

2. A closure as claimed in claim **1**, in which the lifting member comprises a generally hyoidal shape strap or depending loop.

3. A closure as claimed in claim **1**, in which the lifting member includes or defines a window and the closure includes a tamper-evident member at least part of which moves into or out of view with respect to the window to indicate opening of the closure.

4. A closure as claimed in claim **1**, in which the lifting member includes or defines a window and in which the closure includes a tamper-evident member, in an initially closed position at least part of the tamper-evident member is visible in or through the window and when the lid part is moved to the open position at least part of the tamper-evident member moves at least partly out of view.

5. A closure as claimed in claim **1**, in which the lifting member includes or defines a window and in which the closure includes a tamper-evident member, and in which the tamper-evident member is attached to the lid part in the window in an initially closed position and moves at least partly out of the window when the lid part is opened.

6. A closure as claimed in claim **1**, in which the lifting member includes or defines a window and the closure includes a tamper-evident member, in which when the lid part is initially opened the tamper-evident member irreversibly moves to become visible in or through the window.

7. A closure as claimed in claim **1**, in which the closure comprises a window and in which one of the rings is retained by the lid part and the other ring moves to become visible in or through the window.

8. A closure as claimed in claim **1**, in which the retention portion includes an interior retention chin for engagement with a cooperating portion on the closure and/or on a container neck.

9. A closure as claimed in claim **1**, in which the closure comprises a window and in which at least part of the window is formed as an aperture, a pane or a region of thinned material.

10. A closure as claimed in claim **1**, in which the lid part comprises a top plate and in which the top plate is generally flat.

11. A closure as claimed in claim **10**, in which the lid part comprises an annular plug seal which depends from the top plate.

12. A closure as claimed in claim **10**, in which the lid part comprises a sidewall that depends from the generally flat top plate.

13. A closure as claimed in claim **1**, in which the hinge is formed to provide a stable open position for the lid part.

14. A closure as claimed in claim **1**, in which the closure is formed in a closed position or is formed in an open position.

15. A closure as claimed in claim **1**, in which the closure is formed as a one-piece article or is formed as a two-piece article.

16. A closure as claimed in claim **1**, in which the base part includes a snap bead for non-removably engaging a container neck.

17. A closure as claimed in claim **1** in combination with a container.

18. A container closure comprising a base part and a lid part, the base part and the lid part are joined by a hinge, the base part includes a snap bead for non-removably engaging a container neck, the lid part includes a lifting member for lifting the lid part, the lifting member comprises a retention portion for engagement with a cooperating portion on the closure, the lifting member can be lifted to disengage the retention portion so that the lid part can be opened, in which the lifting member is a generally hyoid shape, in which the lifting member is a generally hyoidal shape strap which extends radially outwardly and downwardly from the lid part generally opposite the hinge, in which the base part is a generally annular band with a generally annular snap bead provided on an interior surface thereof, and in which the lid part comprises a generally flat, disc-shape top plate and a generally annular sidewall which depends from the top plate.

19. A container closure comprising a base part and a lid part, the base part and the lid part are joined by a hinge, the base part includes a snap bead for non-removably engaging a container neck, the lid part includes a lifting member for lifting the lid part, the lifting member comprises a retention portion for engagement with a cooperating portion on the base part, the lifting member can be lifted to disengage the retention portion so that the lid part can be opened, in which closure comprises a tamper-evident member and the tamper-evident member is formed separately from the base part and the lid part and in which in which the tamper-evident member comprises two rings, the rings are initially frangibly connected together, when the lid part is opened for the first time the rings are caused to break apart.

20. A closure as claimed in claim **19**, in which the lifting member is a generally hyoid shape.

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